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THE PHILOSOPHICAL REVIEW.

ON COSMIC REVERSIBILITY.

THE idea of the reversibility of part or all of reality is not a new one. Often it has been the mere play of the speculative imagination; sometimes it has been (or at least the possibility of it has been) an important underlying issue in determining the framework of a system of thought. Perhaps, therefore, the best way to estimate the present importance of the problem would be to notice a few of these earlier historical appearances.

In the logic of Aristotle the whole criticism of hypothetical reasoning rests upon the implied doctrine of the plurality of causes. It is valid to argue by 'affirming the antecedent' simply because it is assumed that from a given cause there can be but one effect. It is invalid to 'affirm the consequent' (as a premise) for the explicit reason that the same effect might have resulted from an indefinite and unknown number of causes. In other words, scientific reasoning must move in the forward direction; from an exhaustive knowledge of the cause we may deduce the necessary effect, while in face of an exhaustive knowledge of the effect the cause would remain indeterminate. Probably Aristotle's doctrine of the four types of causality had something to do with this outcome. The entelechy, at least, was not a reversible thing. Final causes necessarily have a definite 'look' in time and one could no more reverse the process than, having looked at the sun with his eyes, a man might imagine the process reversed so that the visual sensation caused the light of the sun. Formal and material causes, as Aristotle defined them, have no

direct temporal quality; and even if in these cases the causes be interpreted as having some kind of position antecedent to their effects, they could scarcely be thought of as calculable, or their consequences as within the range of logical deduction. Efficient causation acts through time; and whether Aristotle thought it possible, in the realm of purely efficient causation, to argue from effect to producing cause or not, it is certain that the formal logicians have offered little objection to that procedure in the history of science. Final causes alone, then, as he represented them, were unequivocally irreversible. But as the four aspects of cause here discussed represent what, in the cosmos, is one integrated movement, he may have thought it unnecessary, in a work on logic, to concern himself with the distinction. Whether, therefore, apart from final causes, the principle of reversibility would have been denied, it is impossible to say; there is room for the suspicion that his answer to such a question would have depended upon whether Aristotle found himself in the deductive or the inductive frame of mind!

Kant makes a much more important use of the principle of plural causes. With Aristotle it is simply a fact that events are so arranged in time that the antecedent determines the consequent without the relationship's being reciprocal. But Kant has taken it upon himself to account for the reality of time, the one element in the situation that Aristotle took for granted. And any complete derivation of the idea of time must involve the elemental distinction of past and future. We find, accordingly, a remarkable change in the situation. Time itself becomes but a form of mental reaction, and the distinction of past and future comes to rest, in turn, upon the asymmetry of the causal relationship. The direction in which we can calculate and manage experience is what we know as futurity and we speak of time as moving that way. That state of affairs adjacent to the present one which slips our grasp and, under the test of rigid calculation, vanishes into a haze of possibilities, is the direction of pastness. To use his own illustration: It is easy to show that if an iron ball is laid on a pillow it will make a depression in it; but from the fact of the depression merely it would be quite impossible to

argue backward to its cause. An indefinite number and variety of things might have resulted in precisely this same depression. In other words, Kant agrees entirely with Aristotle so far as the principle of plurality of causes is concerned; the difference is that time direction, assumed as a matter of course by the Greek, becomes in the Kantian system itself a corollary of the direction of calculability in the causal series.

On the other hand, there was growing up in modern times that great invention of man known as physical science. And oddly enough, in view of the dominating logic of Aristotle, this has always on its theoretical side been more a search for causes than a tracing of effects from causes that were known. Whatever may have been the logical difficulties in the procedure, both observation and experiment were very often simply 'affirmation of the consequent,' and from this the investigator was to affirm the antecedent as best he might. With what success causes have been deciphered from their effects the history of science bears witness. The branch of science nearest to the simple principles of mechanics and geometry and in which, consequently, exact results were first obtained, was, of course, astronomy. And here, long before the time of Kant, the antecedents and consequents in celestial phenomena were treated as mathematically reciprocal so far as calculation from one to the other was concerned. Past eclipses were reidentified with exactly the same confidence with which future ones were predicted; having discovered an arc of the orbit of a body, it was as easy to tell whence it had come as to anticipate whither it would go.

Everyone knows how, in the course of time, the success and simplicity and fascination of all this led to the sweeping assumptions and grandiose claims of the mechanistic philosophy. The whole world in space and time became an immense machine whose running might be calculated equally well in either direction and to the minutest detail if we but had the requisite data at hand. The universe became simply a problem in mechanics, and Laplace dreamed of a tremendous equation representing all existence in which, for a given value of 't,' plus or minus, the whole configuration of the cosmos might be deduced for any

moment of time. And this, of course, is an ideally complete contradiction of the principle of plurality of causes with which we began, and still represents, no doubt, the final though unrealizable ideal of the mechanistic way of thinking.

Whether, in addition to such mathematical reversibility, the machine itself might conceivably be reversed, is another matter. Suppose, that is, that every particle of matter could suddenly be made to right-about-face and start in the opposite direction with precisely the velocity it now possesses, would not the vast pageant of evolution run backward before our eyes like a cinematograph performance in which the direction of the film had been reversed? At first sight, and on general principles, it seems plausible that such a thing could occur. The equations embody, in symbolic form, all the necessary laws according to which one configuration is connected with another; and, if the equations can be made to work backward without loss in determinateness, why not also the objective process they represent? Some, indeed, have made the claim in precisely this form. Helmholtz[1] held that a complete reversal of all atomic movements would, in just such a fashion, start the process of evolution backward; and at least the theoretical possibility of such a thing has become in many quarters a part of the tradition of physical science.

In more modern work in philosophy still another attitude is not uncommon. We are told, for illustration, that *if* the mechanistic theory of the world were *true*, such complete reversibility would be a natural correlate of any description of it. Dr. Ward seems to consider such a possibility to be involved in the mechanistic ideal;[2] as an offset to it he holds, on the other hand, that it is in the world considered as a 'Realm of Ends' that no such reversal could occur. To solve a mechanistic equation for a negative value of 't' would surely not be difficult; but who can imagine a desire working backward from its fulfillment to its origin, or an argument running from its conclusion back to its provocation? Professor Royce regarded it as an essential quality of purpose that it is irreversible in time,—so much so that, in

[1] *Wissenschaftliche Abhandlungen*, Bd. III, p. 594.

[2] *Naturalism and Agnosticism*, Vol. I, p. 203.

The World and the Individual, the presence of seemingly irreversible processes in nature (like the death of an organism or the breaking of glass) are held to betray by analogy the presence of a cosmic Purpose and Life.[1] Professor Bergson, too, contrasts life and mechanism explicitly on this point, mechanism being regarded as inherently indifferent to time, while time or duration is of the very essence of life.[2] He insists again and again that, so far as mere physics is concerned, 't' is an abstract quantity having only mathematical significance and which, since it deals only with simultaneities, may vary in one direction as freely as in the other. A planet or an atom in motion can go back to its starting-point; memory will not unwind, nor can the story of a life be construed backward.

It is the aim of the present paper to point out that perhaps, even in this respect, too much has been conceded to mechanism. No doubt purposes and vital phenomena are incommensurable with any sort of mathematics of masses in motion and are nothing if abstracted from forward movement in time. Modern theory, with all its use of selection and survival and finalism, is infinitely more committed to the specific time order than was Aristotle's world of fixed forms. Sheer passive contemplation, too, could face the idea of a cosmic reversal with infinitely more intellectual equanimity than could the modern scientific temper of mind with its explicitly instrumental thinking and dependence upon tentative hypotheses and experimental programs. But putting all this aside; granting even the most naïve and transparent conception of cosmic mechanism, it is possible to hold that the notion of a reversal is little more than a trick of words, and utterly inconceivable in detail. In specific cases it might be possible to manipulate things in the opposite order of their occurrence, but only by the most arbitrary selection of conditions; and in each case success would depend upon the continuation of contextual processes just as at present they are. And this, to say nothing of the direction of change in the ultimate independent variable. We shall seek, consequently, to show (*a*) that the basis of all this analogy, the human-made machine, can itself

[1] *The World and the Individual*, Vol. II, pp. 216 ff.

[2] *Creative Evolution*, Chapter I.

be reversed in only a metaphorical and half-hearted way that is wholly inadequate to support the mechanistic inference in philosophy; (*b*) that in the specific phenomena of the particular sciences the idea of reversal leads only to confusion and absurdities; (*c*) that the reversibility of the mathematical equations is so far from representing a reversal of the concrete processes that, on the contrary, it is generally inconsistent with it; and (*d*) finally, that reversibility cannot even be saved by the familiar distinction between spatial and temporal series.

I. Whether or not it can be called 'anthropomorphism' in the strictest sense of the term, there can scarcely be any doubt that the mechanistic mode of thought has developed, as its name implies, from man's experience in making and dealing with machines. Clocks having been a fairly early invention so far as our civilization is concerned, not a little of the familiar terminology of the horologist permeates mechanistic speculation. The Universe is 'wound up' or is 'running down'; geological periods and astronomical cycles mark the hours of universal time. The finite machine is historically the archetype, and the ideal of the calculable universe is simply a vast analogy on the basis of it. Idealists and mechanists might even be said to differ first of all in the fact that the one objectifies and universalizes the work of his mind, the other the work of his hands. In spite of this, however, the work of purpose in the structure of a machine is commonly neglected and it, as mechanical, is contrasted with things and processes distinguished as teleological. It is well to notice, then, (*a*) that a strictly self-running machine does not exist, and (*b*) that none except the simplest machines are in any sense reversible in action, and most of them not at all.

The more one thinks about it the more important becomes the easy and obvious reflection that no machine runs itself. Somewhere there is a lever or a throttle, a key to touch or a release to turn, before any machine will perform even its own mechanical function. All machinery is an extension and amplification of human hands, and is ultimately as helpless when the contact with those hands is broken as the hands themselves would be

when severed from the rest of the organism. For practical purposes, perhaps, this connection of machines with the rest of human economy may be neglected; from the standpoint of ultimate theory that connection, if only mediated by the pressure of an electric button, is the nerve of the whole arrangement. It represents the contamination of pure mechanism by the strain of finality; and such interfering purpose must serve to polarize the whole arrangement in time. All this comes to light the moment the order of operation is to be changed. In such a case this human interference must amount to an essential change in the structure of the machine itself. The lever of a locomotive is thrown over and the result is a backward in place of the forward movement; *but it is not the same machine it was before.* It is now as explicitly constructed to run backward as it was before to run forward (neglecting for the moment the fact that, except for human customs and purposes, one direction is as much 'forward' as the other!); and it simply could not run in the original direction again until the one crucial element in its construction was arbitrarily altered accordingly. In other words, the engine as it is at any given moment is not reversible in its action, and no mere temporary reversal of all its movements (as might, for instance, be accomplished by a well cushioned and properly arranged head-on collision!) would make the machine itself a backward working one. As soon as the superior opposing force were removed, the engine would start back in the only direction in which, as it is, it can possibly go. Or who would think of trying to start a clock to running backward by giving all its wheels a sudden push in the opposite direction? And of course it is obvious that by the time it had been *fixed* so as to run backward it would no longer be a clock at all.

It would seem at first sight as if nothing could be more ideally reversible than a simple mechanism such as a lever; but one is met by the same difficulties here. Under given conditions of stress a lever is anything but indifferent to the order of events. A sudden physical reversal of direction of movement would mean a progressive or continuous reversal only in one special case, *i. e.*,—where the motion of the lever was wholly a matter

of antecedent momentum or, what is the same thing, where it was in perfect balance. But in any other case the reversal of movement would mean only the most trivial set-back in a process that in its main issue depends wholly on the character of the lever system itself,—of which character all differences of loading are, of course, an integral part. The only reasons why it should suggest itself at all as a reversible arrangement are (*a*) the ease with which the conditions of its working are altered, and (*b*) its very remoteness from the type of a 'closed system' which ultimately the cosmos, in current analogy, is taken to be.

In the case, however, of anything like a complicated mechanical process, any conception of backward process is essentially grotesque. Consider, for instance, the suggestion that a book might be unprinted by running it backward through the press, or a stocking turned into a ball of yarn by giving the motion of the knitting machine a minus sign! In general, what is constructed to turn A into Z in the course of its operation, would simply turn Z into chaos if started off in the opposite direction. The fact is that however glibly we may speak of the mere 'accident' of time direction and amuse ourselves with the thought of a sweeping cosmic reversal, no mechanism, just because it *is* a mechanism, is on that account capable, by any assumed negative movement, of undoing in simple order what it has done. How much less, then, may one dream that evolution might, by any mechanistic magic, become an involution that would resume its own history in reverse order! It is not enough to say that in this case the analogy breaks down; there is, strictly speaking, no assignable analogy to be broken.

II. It is evident that, if a perfect machine be a perfectly reversible affair, no human machines have more than a negligible suggestion of such perfection. It might, however, be that, though mechanistic theory gets its cue from our human contrivances, it has the right in its ultimate speculations to abstract from the limitations and imperfections of practical mechanics. It would be well, then, to see if reversal would be any easier in the hypothetical world of present scientific theory.

The pressure exerted by a gas, as, for instance, in the steam

chest of an engine, is due to the kinetic energy with which the molecules, like minute projectiles, bombard the containing walls, —a truly remarkable thing when we remember that in ordinary practice these invisible bounding molecules of steam, infinitely smaller than the finest visible dust, must be considered to produce, by the summation of their impacts, a moving force of 200 pounds or more a square inch! Yet, incredible as it seems to casual imagination, such is the active mechanism which, we are forced to believe, constitutes the body and the energy of heated gas. Take such a system as embodied in a former illustration and at the moment when the piston head is being pushed forward by the expanding steam; and neglect, for a moment, the molecular movements in the body of the steel itself. Suppose, then, that the sudden cataclysm of universal reversal should take place. The piston as itself a moving body would, of course, be given a backward momentum equal to its former forward one, and every flying molecule of the gas would also shunt through the corresponding 180 degrees of direction angle. The result would be, not that the working of the system as a whole, or even of the piston head alone, would be physically reversed. On the contrary, the forward pressure of the steam would be exactly what it was before the change; *the tendency of a gas to expand does not depend upon the direction in which the molecules move*, but only upon the condition that they shall move at random in all directions, and this state of affairs would not be altered in the least by the contemplated change. In other words, if the pressure laws of mechanics are assumed to hold, the body of expanding gas in question would suffer only the temporary check of having to catch up, by a moment of extra pressure, the work necessary to overcome the slight contrary momentum our magic would have given to the piston head, and then the process would proceed in the *same* direction in which it was going before.

Perhaps, indeed, space and time might both be conserved by the observation that this very instance so clearly suggests, viz., that even in the merest mechanism consisting of nothing more than matter in motion, there are not lacking resultant effects

that are in no wise due to the *direction* in which the motion of the ultimate parts takes place; and it is obvious that just in so far as the state of a mechanical whole does *not* depend upon the direction of motion of its parts, the universal change here under discussion would produce no final difference. As instances of such resultant processes might be mentioned, in addition to gaseous pressure, all cases of osmotic pressure, of molar heat, of the chemical and physical behavior of substances in solution, most cases of friction, etc. The only conspicuous exceptions, indeed, in the field of theoretical physics and chemistry, would be found, perhaps, in the ion theory of electrical conduction and the quantum theory of light. All ordinary chemical processes then, and most of what we ordinarily class as physical, would simply not be affected at all when the direction of all ultimate movement was completely reversed.

There would be little profit in carrying illustration further, unless indeed it were to point out that the more complex the phenomena considered the more grotesque and bizarre becomes the idea of a reversal. Let one try to imagine any such incident in the processes studied by geology. What, under the assumed inverted conditions, would become of erosion? Would water, once it were given a start, run up hill and, incidentally, carry its load of lime and sand and gravel back where it came from? If it be suggested that we should have to imagine the *laws* of nature—in this case the force of gravity—changed along with the direction of motion, the answer is two-fold: (*a*) Such a change, as we shall see later, would totally upset the mechanistic mathematics; and (*b*) even if the law of gravitation too were reversed we should entirely fail to get the geologic reversal. Under such circumstances surface water would not flow at all, up hill or down, but simply dash off perpendicularly into space, along with everything else that was loose on the planet,—everything that was not held back by some superior tension (such as, perhaps, a correspondingly inverted centrifugal force!). The simple fact is that geologic processes could not be reversed at all without the most arbitrary and elaborate interference with things, most of which interference would be hopelessly inconsistent with the reversal of neighboring concomitant processes.

In biology, psychology, etc., it is useless to speculate. What would one mean by the working of metabolism backward? Would heat be produced or absorbed in the process? If the former, all laws of chemical action would have to be given a negative thermo-dynamic effect (in which case there is no evidence that, in a series of otherwise fairly stable substances, anything but explosions would be possible); and if heat were absorbed, it would require assumptions (as, for instance, that a sphere of radiation should contract itself toward a center by some new and unimaginable etherial elasticity) which would entirely cancel the remaining remnant of mechanism. In psychology, the contraction of muscles would have to lead to the sensation to which they were the response; or, the possession of a thing give rise to the desire for and the want of it, the reply give rise to the question it answered, etc., without end.

At this point it may be well to forestall one obvious objection that might be raised against the present mode of treatment. We have, it may be said, no right to treat lines of causality in isolation. If the whole movement of the universe were reversed, the drop of water that had fallen in rain would find at hand the resultant of forces that would hurl it back again to the sky. Even the particles of air that before had impeded it would now, in a negative rush, contribute their energy to its upward flight. The equivalence of matter and energy between any two moments is complete, and the direction of exchange, in an ultimate mechanical sense, is indifferent,—however absurd that may seem to our conventional imagination. But in reality this represents no new point of view. In the first place (*a*) to continue the illustration, the friction and resistance of the air does *not* depend upon the *direction* of movement of the particles of the air, and so would resist the rise as it resisted the fall of the drop of rain. And (*b*) the direction of exchange of causal energy is *not* indifferent to the whole, else we should expect to find, along with the infinite numbers of falling rain-drops, a reasonable number of cases in which fortuitous circumstances had led to the reverse performance. That such is not the case absolutely precludes the possibility that their direction is in any sense indifferent to the causal totality.

III. Down to this point one important consideration has been neglected, viz., the bearing on the whole question of abstract mathematics. And this is the more important because of the fact that the boldest suggestions of cosmic reversal have generally had (as in the case of Laplace, Helmholtz, etc.) mathematical grounds. It would probably be more accurate to say that they have arisen in an atmosphere of mathematical suggestion, for—and this is the very point at present aimed at—it is difficult to see how, concretely and in detail, mathematical formulae could be made to lend much support to any such hypothesis.

In the first place, and in any case, the mathematical equations must, in this connection, be regarded simply as symbolic expressions for the laws that determine mechanical action. Therein consists their relevancy and usefulness. That, too, is the basis of the assumption that a determinate mathematical result would always be paralleled by a determinate physical effect in the world of reality. And this limits at once the freedom and the range of speculation on the subject. We have just noticed, in the previous section, that the processes of nature could conceivably be reversed only if we were entirely at liberty to reverse the laws too, along with the direction of movement,—whatever such 'reversal' might mean. (Let one try, for instance, to write the 'reverse' of the law of gravitation that the attraction of two bodies for each other is $f(mm'/d^2)$. It might be (*a*) an attraction equal to $f(d^2/mm')$; (*b*) a repulsion equal to $f(d^2/mm')$; (*c*) a repulsion represented by $f(mm'/d^2)$; or (*d*) either an attraction or a repulsion equal to $f(mm' \times d^2)$. Who can say on what mathematical or logical axis a law of nature should be turned in order to fit it to a temporarily inverted world? So long as the latter is a wholly hypothetical possibility, one may almost order one's quantitative statement of it to taste!) If, however, gravitation *were* replaced by some antithetical sort of repulsion, or the thermodynamic features of chemical reactions were altered, that could only mean, on the side of the mathematics (and this is the crux of the whole question), a *changing of the character of the determining equations themselves*,—that is to say, of the only definite basis we have on which the real past of a mechanical system

could possibly be calculated. To assume a change in the relationships, then, that compose the mechanical laws of motion and change, is to put even theoretically and mathematically out of reach the very facts that, on the basis of such mathematics and theory, we were trying to reinstate. This outcome would, of course, be enough to invalidate the whole suggestion of reversal.

But difficulties multiply. If one were in possession of unequivocal facts concerning space and time relationships, one might be able to state such facts in terms of arbitrary mathematical symbols. But to get back from the mathematical operations to reality is another matter and is beset with ambiguities. Suppose we had Laplace's much celebrated 'equation of the universe,' and suppose it to describe in an exact and quantitative way the series of states of the cosmos *ABCDE*, etc. in successive instants of time. And let *C* be chosen as the origin of coördinates where $t = 0$. One could, of course, assuming the continuity of the laws of change, infer what *had been* the state of affairs at the moment *B*. But that is only tantamount to saying that, *in a universe that would in two more seconds become F*, one is warranted in concluding that *C* is the outcome of an antecedent state *B*. Furthermore, or to say the same thing in other words, the *B* to which one calculates is explicitly one of such a character as would proceed to resolve itself necessarily into *C*, *D*, . . . and the rest of the series. A state *B* that would, instead, produce what had, under normal circumstances, been its predecessor (*A*) would simply not be the *B* which the equation for *C* allows us to calculate. Figuring backward to previous events in a progressive series of changes is so far from figuring forward in a regressive series of events, that the one absolutely precludes the other. The equation that shows exhaustively why *B* changes into *C*, thereby shows exhaustively that it cannot change into a wholly different situation *A*. And, on the other hand, and for the same reasons, *B* can give rise to *A* only by subverting everything represented by such an equation and therefore the equation itself. That a rational meaning might, in any specific case, be given to any specific value of *t* in a mechanics equation, is not denied; the point is

that our antecedent knowledge of the facts must determine both the notation and the interpretation thereof. It could not be used simply at large as the traditional speculation implies. The criticism, be it noted, is not of the mathematics, but of the assumptions with which the calculations deal.

At least it is evident that, to calculate backward concerning a process is one thing; to imagine that such calculation is equivalent to the description of a backward movement on the part of the real process itself, is quite another. It even seems possible that the former totally excludes the latter. That is, there seem to be only two simple alternatives: to decide that the equations of mechanics, far from being indifferent to time direction, state such direction irremediably in their very structure; or to conclude with Bergson that in the last analysis calculation deals only with space and simultaneities and does not in any wise grasp the flow of time. The present purpose, however, is to draw no ultimate conclusion of this nature; it is enough to have shown that the simple possibility of substituting a negative value for a positive one in a set of mathematical equations does not afford *any* proof that reversibility in time is a corollary of the mechanistic hypothesis.

IV. There is just one other suggestion occasionally made with reference to real reversibility which, while it has not to do with mechanism as such, may with a certain propriety be mentioned in this connection. It is said that the essentially irreversible element in existence is time itself.[1] Just, in fact, as space may be taken to represent the multitudinous items in the world in so far as they are related in reversible series, time stands for that diameter of reality along which all series are irreversible; of this the futility of regret and the security of accomplished record are excellent witnesses. That we are unable, as finite beings, to undo the past or arrest the flow of time, is obvious enough. But neither, for that matter, are we able to retard the spatial movements of the earth in its orbit; and it does not seem absurd to assume that the explanation might be similar in the two cases. Perhaps, that is, the direction of

[1] Cf. Royce, *World and Individual*, Vol. II, p. 114 ff.

the time series is fixed for us because we are caught in some vast movement of Life which our most violent struggles are unable to swerve in the slightest degree; and at the same time such movement may be, from the standpoint of an absolute experience, as relative and contingent as any stellar drift in space. But these issues, too, are beyond the present search. The single point of interest now is to decide whether, in the contrast of the spatial and the temporal, lies the key to the idea of reversibility.

It is first in order to notice whether, in the comparison as ordinarily made, the spatial and temporal series are taken on an equal footing. We have said that the spatial series is reversible while the temporal series is not. This means, let us suppose, that a real object may traverse a given part of space a second time, while a given period of time can be traversed but once. This is undoubtedly the ordinary meaning. However, it must be evident on a moment's thought that, in these two alternatives, spatial and temporal terms are thoroughly tangled. Suppose an object does traverse exactly the same space a second *time;* can it be said that one is dealing here only with a *spatial* series? What would a second 'time' have to do with a purely spatial series? On the contrary, is not time here the essential fact of the whole discussion? In which case we must state the proposed alternative as follows: A given series of points in *space* can be experienced a second *time*, while a given series of points in *time* cannot be experienced a second *time*. That is, a spatial-temporal series is compared with a temporal-temporal series, and it is no wonder that a difference of principle should be found to obtain between the two. One sets out to compare time with something else, and then states the proposition in such a way that time becomes the common denominator of both,—of itself and of the other series with which it is being compared. No final comparison can be made on these terms.

But perhaps there is another way to understand the whole contention. Suppose we say that 'direction' is the only thing referred to in this case. When it is said that the space series is reversible while the time series is not, the meaning then would be that an object can go in any direction in space while time

changes in only one direction,—from the past toward the future. But here again it is doubtful whether a spatial series is opposed to a temporal one in a simple and coördinate manner. Is 'direction' of movement any more a spatial than a temporal phenomenon even when the movement is what we ordinarily speak of as spatial movement and the direction, therefore, as supposedly a spatial one? Movement is a kind of change, and like any other change is a time function. Take any two points on the path of a moving body, and the direction of movement has to do simply with which of the two points was occupied *first* (*i. e.*, in time!). It appears, then, that in place of a simple space series, we have on this side again a complicated space-time function. And the other alternative would, on this view of the problem, be little better off. What could one possibly mean anyhow by 'direction' of time? Of course we would be told that the expression is figurative merely; but is there any way to state the idea so that it would *not* be figurative? In any case, this elucidation of the problem will have to wait upon the interpretation of the metaphor. And the drift of it gives the unavoidable impression that here again we are failing to compare a space series with a simple and coördinate time series, and that is just what ought to be done if the distinction in question is to be maintained.

It turns out then that whether reversibility be regarded (*a*) as a concrete physical process behaving in a manner precisely opposite to its custom; or (*b*) as a concept applying only to the ultimate hypothetical world of abstract physics; or (*c*) as a kind of objective analogue to the reading backward of a mathematical equation (which, Bergson is surely right in saying, has, as an equation, no direction at all); or (*d*) as a reversal of the time stream itself,—in every case the notion dissolves away into a sort of pseudo-mathematical dreaming. And the conclusion seems warranted that not only is purpose and final cause essentially unthinkable apart from its fixed time direction, but that efficient causality, in its temporal alignment, is equally fixed and unalterable. ***In other words, reversibility and causality are inherently antithetical and mutually contradictory conceptions.***

The only kind of objective series that could be represented as reversible at all would be one entirely without internal coherence, a monument of absolute chance. If, conversely, there is any imaginable situation in which reversal could not possibly occur, it is in a series that is not only causally concatenated but bound together in a way that is statable in the quantitative equations of mechanism. Such a conclusion may very possibly be of interest in view of the fact that it was in connection with theories of mechanism that the concept of reversibility originally arose.

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LEIBNIZ AND GERMAN IDEALISM.

IT is universally acknowledged that Leibniz is the founder of German philosophy, but what is not seen, at any rate with equal clearness, is that the central conceptions of Leibniz dominate the great idealistic systems of Germany from Kant downwards. Leibniz's way of conceiving of the ultimate reality is, in essence, also that of Kant, Hegel and Lotze. To say this is not of course to maintain that the Leibnizian doctrines have been reproduced without change by his successors, but I think it is not difficult to show that if we go beneath the surface we shall find that the ideas which Leibniz introduced into modern philosophy and for which he was largely indebted to Plato have, to a considerable extent, been the determining influence of subsequent speculations. Leibniz's philosophical descendants have not rejected but retained and developed his leading thoughts. In order to show this it is necessary to begin with a brief summary of the main views of Leibniz.

The units of which the world-system is composed are the monads or spiritual principles, and each of these principles in spite of its limitations—which, however, are not external but intrinsic to it—is a complete whole and, therefore, ideates the *whole* world from its special point of view. These monads are regarded by Leibniz as absolutely cut off from and in no way influencing each other, but he is not able to retain this view to the end; and though it is not explicitly rejected, it must be regarded as virtually abandoned if we are to put any consistent meaning into his theory of the relation of God to the monads. God is the cause of the preëstablished harmony, which accounts for the correspondence between the ideas of the monads and the actual order of the world. The ideas of the monads are not merely internal modifications of them but are relative to the objective order; but as the view that the monads are independent of each other is fatal to the correlativity of the ideation of the monads and the world order, and as without such correlativity the world

would not be a rational order but a perfect chaos, Leibniz is forced to conceive of the world as related to God as an army, to use a simile of Aristotle's, is related to its general. The monads then which alone count are those that are in preëstablished harmony with and *not* in isolation from each other. This view is further enforced and developed when the distinction is made between the possible and the compossible and we are told that those monads alone are real, as distinguished from those which are merely possible, which coexist with each other as component elements of the world in which the purpose of God is realized. And, finally, even the semblance of the isolated independence of the monads is taken away when they are conceived as emanations from God. It appears then that whatever may have been the starting point of Leibniz, his final view of the world is that it is an orderly whole of interrelated reals, which are monads possessing ideas of different degrees of clearness, all comprised within the being of God who, if He transcends them, is also immanent in them and of whose mind they are the embodiment or expression.

Now the theory sketched above represents, in substance, the final form which Kant's conception of the 'thing-in-itself' assumes in the Dialectic. It is a great mistake to suppose that the Dialectic is mainly negative in its results. With the destructive criticism is intermingled a positive view of the *mundus intelligibilis* which Kant inherited from Leibniz and which he always had in mind. This view is, no doubt, put forward tentatively and more as a private conviction of the philosopher than as a theory capable of demonstration, but it had a great hold on Kant's mind. Paulsen rightly observes that Kant's metaphysics "maintains its position alongside of the official system, but it has the value only of a private opinion of Kant's with which he did not care to dispense. But one must then add that this private opinion was older than the epistemological system, and it was so deeply rooted in his thought that he would sooner have given up the Analytic than the *mundus intelligibilis*."[1]

The earliest statement of Kant about the 'things-in-them-

[1] *Immanuel Kant: His Life and Doctrine*, English tr., p. 247.

selves' is that they are the unknown objects which affect our sensibility and produce the impressions which are the raw material of knowledge. This doctrine does not substantially differ from the crude realistic view of matter as the substratum of the qualities of things, and is utterly inconsistent with the main lessons of the Analytic. The objections to which it is open from the standpoint of the Deduction of the Categories are obvious and it is impossible to suppose that Kant was not aware of them. The fact is that the view that things out of all relation to our understanding act upon us and produce sensations in our mind is only a provisional statement to be understood in the light of what is said later on in the *Critique*. Kant often states a doctrine in a form which is least removed from the standpoint of the ordinary consciousness and then introduces modifications into it till his real meaning comes out. In the Aesthetic, for example, space is spoken of as a form of sense independent of the categories, but when we come to the Analytic, we learn that it is the sensible representation of the synthesis of homogeneous units effected by the understanding. In the same way, the apparently realistic theory that 'things-in-themselves' are the opposite of mind and act upon it from without, wears a very different aspect when we come to consider Kant's statements about the intelligible world in the Dialectic. Towards the end of the Analytic, the 'things-in-themselves,' which at the beginning look so like the unknown substance of Locke, are defined as constituting the supersensible world which surrounds and limits the world of experience to which the understanding is confined. This intelligible world, we are informed, is a *terra incognita*, "a wide and stormy ocean, the true home of illusion, where many a fog-bank and iceberg that soon melt away tempt us to believe in new lands, while constantly deceiving the adventurous mariner with vain hopes and involving him in adventures which he can never leave and yet can never bring to an end." In this vast ocean, "the country of truth," the experienced world, "is an island and enclosed by nature itself within limits that can never be changed." The function of the concept of a noumenon "is merely limitative and intended to keep the claims of sensibility

within proper bounds, therefore of negative use only." The noumenon cannot be known, because *we* are so constituted that we can only know sensible objects discursively by means of the categories, but Kant intimates to us even at this stage that what is beyond *our* understanding may nevertheless be the object of a perceptive understanding, an understanding that creates its objects in knowing them, "a process of which we could not understand even the bare possibility." But though a noumenon is incomprehensible by human intellect, the concept of it "remains not only admissible but, as a concept to limit the sphere of sensibility, indispensable."

If the concept of the noumenon serves the purpose of prescribing limits to the *mundus sensibilis*, it cannot be a merely negative concept. That in the light of which we perceive the limits of the phenomenal world, that which defines its boundaries and determines its nature, cannot itself remain entirely unknown. It is impossible to know that an island is surrounded by ocean and yet to remain wholly ignorant as to what ocean means. The light by which you see a thing cannot be invisible. From the concept of the noumenal world as that which lies beyond the objective world of experience and limits it, Kant is inevitably led to the more positive conception of noumena as Ideas of Reason which give unity to and organize experience. The vague and indeterminate 'things-in-themselves' now become transformed into concepts of reason whose function is to impart to experience "a direction towards a certain unity of which the understanding knows nothing and which is to comprehend all acts of the understanding with regard to any object into an absolute whole." The categories of the understanding constitute experience by connecting phenomena with each other, but in the world of experience so constituted the highest ideal of unity is not realized. "Our faculty of knowledge feels a higher want than merely to spell out phenomena according to their synthetic unity in order to be able to read them as experience." In the phenomenal world objects and events stand related to other objects and events and give rise only to endless series. This does not satisfy reason, which seeks to find a principle of

unity beneath the differences of objects. The aim of reason is not merely to refer the present phenomena of the world to those that precede them in the endless chain of causation, or simply to prove that the world is a whole of interconnected parts, but to trace the total system of things up to an ultimate principle revealed in it. The reason for this demand of reason is to be found in what, according to Kant, are the necessary conditions of experience itself. The purely analytical unity of the self makes experience possible by introducing its own unity into the differences of sense, and in doing so becomes synthetic. By means of its synthetic activity it constitutes the objective world in distinction from which it becomes conscious of itself as a unity. In this way, however, it so to speak loses the purity of its nature, viz.,—its undifferentiated unity with itself. To realize such a unity, therefore, becomes its ideal. On the other hand, though unity is introduced into the manifold of sense, its essential difference can not be completely overcome and this circumstance gives rise to the second Idea of Reason, viz.,—the conception of the world as an unconditioned whole. And, in the third place, the relation of the unity of the self to the experienced world suggests an all-embracing unity in which their differences are reconciled. The three Ideas of Reason, we thus see, arise from the very nature of human knowledge. As Kant says, "There is in the progression from our knowledge of ourselves (the soul) to a knowledge of the world and through it to a knowledge of the Supreme Being something so natural that it looks like the logical progression of reason from premises to conclusion."

For reasons which it is unnecessary to set forth here, Kant regards the Ideas of Reason as merely regulative and not constitutive. He does not think it possible to be sure that there are real objects corresponding to these ideas or to determine their nature. But, in spite of his agnosticism, he occasionally proceeds to lift the veil and lets us catch glimpses of the noumenal objects, though with the constant reminder that what we are thus enabled to see should not be taken too seriously. Kant, it must be remembered, is not an agnostic who maintains that it is impossible for the human mind to have any idea of the

noumenon. He *does* tell us in what sense it is possible to regard the world as an unconditioned whole and God as *ens realissimum*. All that he insists upon is that it is beyond our power to give any *proof* of the validity of these conceptions. So far as strict knowledge goes, we are unable to step beyond the world of experience.

Now the conjecture which Kant makes about the nature of the 'things-in-themselves' is that they may be intelligible principles analogous to the self. "That which forms the foundation of external phenomena and which so affects our sense as to produce in it the representations of space, matter, form, etc., if considered as a noumenon, might be at the same time the subject of thinking, although by the manner in which it affects our external sense, it produces in us no intuitions of representations, will, etc., but only of space and its determinations."[1] "The substance which, with reference to our external sense, possesses extension might very well by itself possess thoughts which can be represented consciously by its own internal sense. In such wise the same thing which in one respect is called corporeal would in another respect be at the same time a thinking being, of which, though we cannot see its thoughts, we can yet see the signs of these phenomenally."[2]

This idea is still further developed when Kant, in dealing with the solution of the third and fourth antinomies, argues that both the alternatives may be true but in different senses. It is possible to conceive of the phenomenal world as the expression of noumenal objects and to say that while the noumena are free causes and have necessary existence, the manifestations of them are contingent and related to each other according to the law of causality. "What in an object of the senses is not itself phenomenal, I call intelligible. If, therefore, what in the world of sense must be considered as phenomenal possesses in itself a faculty which is not the object of sensuous intuition, but through which it can become the cause of phenomena, the *causality* of that being may be considered from *two* sides, as *intelligible* in

[1] *Critique of Pure Reason*, Max Müller's tr., p. 291.
[2] *Ibid.*, p. 292.

its *action* as the causality of a thing by itself, and as *sensible* in the *effects* of the action, as the causality of a phenomenon in the world of sense. . . . As all phenomena, not being things by themselves, must have for their foundation a transcendental object, determining them as mere representations, there is nothing to prevent us from attributing to that transcendental object, besides the quality through which it becomes phenomenal, a *causality* also which is not phenomenal, although its effect appears in the phenomenon. Every efficient cause, however, must have a *character*, that is, a rule according to which it manifests its causality and without which it would not be a cause. According to this we should have in every subject of the world of sense, first, an *empirical character*, through which its acts, as phenomena, stand with other phenomena in an unbroken connection, according to permanent laws of nature and could be derived from them as their permanent conditions, and in connection with them form the links of one and the same series in the order of nature. Secondly, we should have to allow to it an *intelligible* character also, by which, it is true, it becomes the cause of the same acts as phenomena, but which itself is not subject to any conditions of sensibility, and never phenomenal. We might call the former the character of such a thing as phenomenon, in the latter, the character of the thing by itself." [2]

The idea which passages like this suggest is that the objects which form parts of the experienced world are, considered in themselves, or viewed as it were from within, akin to self. What appears to us as objects held together in one space and mutually influencing each other, thereby undergoing changes linked together according to the law of causality, are, as noumena, active selves. These active selves or efficient causes, again, are comprised within and form organic elements of the absolutely necessary Being which is the ground of the *mundus sensibilis*. It is essential to remember that in Kant's view there is not *one* intelligible cause but a plurality of intelligible causes, though, ultimately, they are all constituent elements of the one supreme Being. The unity of the absolutely necessary Being must not

[2] *Op. cit.*, p. 436.

be confused with the efficient causes which are a plurality. If we carefully consider Kant's statements in regard to the relation between the intelligible world and the sensible world, we find that he affirms three things explicitly or implicitly. In the first place, he maintains that sensible objects are phenomenal expressions of active spiritual essences. These essences, therefore, must be as many as there are distinguishable things. "For every series of conditions, there must be an unconditioned." Successive changes are determinations of a single substance and if each series of changes is the outer expression of what in its intelligible character is an active spiritual being, it follows that a plurality of substances, conceived as things by themselves, are a plurality of active selves. "In every subject of the world of sense," Kant tells us, "we should have first an empirical character and secondly, an intelligible character." If so, it cannot but be that behind the plurality of phenomenal substances there are a plurality of noumenal beings or spirits.

In the second place, it is Kant's view that the intelligible causes of phenomena are not distinct and isolated from each other but integral parts of the one ultimate unconditioned Being. If there is a nexus between phenomenal substances, if they are real only as they mutually determine each other, there must necessarily be an ideal nexus between the noumenal realities of which they are expressions. In fact, Kant's thought in this matter is not much different from what Lotze, drawing his inspiration mainly from Leibniz, worked out afterwards. His supreme Being is very like Lotze's, and includes within itself as elements of its being all the intelligible causes which are behind phenomena.

In the third place, the way in which Kant solves the third and fourth antinomies necessarily leads to the view that the phenomenal world is the expression of the intelligible world and is, therefore, involved in its being. Kant does not develop a consistent theory of the relation between the *mundus intelligibilis* and *mundus sensibilis*. According to the Analytic, the phenomenal world is constituted by the understanding and is, therefore, only an appearance *to us* of the real world lying behind

it, but the view which the Dialectic suggests is that phenomena are the *empirical* character of the *noumena* revealed in them and are, therefore, not phenomena merely in relation to us but also in relation to the noumena themselves.

Kant's conception of the supreme Being carries his thought a stage further and reveals his meaning more fully. He regards it as the ideal principle from which nothing positive is excluded and of which everything is an expression. "If our reason," he argues, "postulates a transcendental substratum for all determinations, a substratum which contains, as it were, the whole store of material whence all possible predicates of things may be taken, we shall find that such a substratum is nothing but the idea of the sum total of reality. In that case all true negations are nothing but *limitations*, which they could not be unless there were the substratum of the unlimited."[1] The *ens realissimum* is the perfect whole from which particular realities are derived by limitation. "All the manifoldness of things consists only of so many modes of limiting the concept of the highest reality that forms their common substratum, in the same way as all figures are only different modes of limiting endless space." The most perfect Being is the ultimate unity which expresses itself in and contains within itself all particular things which, in their true nature, are akin to self. Kant's use of the disjunctive syllogism as the symbol of the *ens realissimum* throws light on his meaning. The disjunctive syllogism represents the idea of the complete determination of a whole through its exhaustive expression in its mutually exclusive members, each of which is limited and defined by its relations to the rest, and if it typifies the most perfect Being, it is because the most perfect Being is the ideal unity on which all things are grounded and from which they proceed. "The transcendental major of the complete determination of all things," observes Kant, "is nothing but a representation of the sum total of all reality and not only a concept which comprehends all predicates, according to their transcendental content *under* itself, but *within* itself; and the complete determination of every thing depends on the limitation of the

[1] *Op. cit.*, p. 465.

total of this reality, of which some part is ascribed to the thing, while the rest is excluded from it, a procedure which agrees with the *aut—aut* of a disjunctive major and with the determination of the object through one of the members of that division in the minor. Thus the procedure of reason by which the transcendental ideal becomes the basis of the determination of all possible things is analogous to that which reason follows in disjunctive syllogism." [1]

We have distinguished six main stages in the development of Kant's concept of the 'thing-in-itself.' First, it comes before us as the unknown cause of our sensuous affections. Then it is the unnavigated ocean that bounds the island of the world of experience. Next, it is the regulative idea which imparts unity to our experience. Next, it is the analogue of the unity of self-consciousness. Next, it is the unconditioned background of sensible phenomena and the sum total of the intelligible causes to which series of changes are referred. And, finally, it is the *ens realissimum*, the perceptive understanding "that thinks in intuitive ideas in some such way as the creative genius thinks in images." The 'thing-in-itself,' in its ultimate development, is no other than God who, in the words of Paulsen, "is the primeval cause of the possibility of all being, out of which that of every entity must be regarded as derived by limitation; so that there is no entity which would not be posited in God's being." [2]

It is true that Kant, who thus conducts us step by step into the intelligible world, frequently turns round and reminds us that it is only dreamland and must not be mistaken for *terra firma*. This, however, need not unduly discourage us. Kant's agnosticism, after all, is a very thin veil which but imperfectly conceals the deep-rooted convictions of his mind. As Paulsen rightly observes, he "has a really transcendent metaphysic. He gives his complete adherence to it as the rational view of the world. But it is not possible as *a priori* demonstrable knowledge of the understanding, as scholastic philosophy tried to be. From

[1] *Op. cit.*, p. 466.

[2] *Immanuel Kant: His Life and Doctrine*, English tr., p. 221.

such a standpoint only mathematical physics is possible, which is concerned solely with phenomena and their necessary relations in space and time. Reason, on the other hand, necessarily passes beyond the phenomenal world to the intelligible world, which is a world of existing ideas that are conjoined by logical and teleological relations and are intuitively present in the divine intellect. . . . It is clear that this is the Platonic-Leibnizian philosophy. Kant had it constantly before his eyes in Baumgarten's Text Book. Reality, as the understanding thinks, in contradistinction to sensibility, is a system of monads which are joined in a unity by means of preëstablished harmony or an *influxus idealis*, like that which exists between the parts of a construction of thought or a poem. The ultimate ground of the unity of things is their radical unity in God's being, while bodies, on the contrary, are merely *phenomena substantiata*. Kant never discarded any of these ideas." [1]

Now the conception of the ultimate reality as a system of minds in which an all-inclusive spiritual principle is realized is also the central idea of Hegel's philosophy. Interpreters of Hegel have so insisted upon his monism that they have almost overlooked the pluralism which is as much a distinguishing feature of his philosophy as its monism. He has been accused of an uncompromising pantheism, his universe has been characterized as the 'block universe' and, in entire oblivion of what is urged in the introduction to the *Phenomenology of Mind* and elsewhere, he has been supposed to deduce the concrete world of differences from a unity as abstract as the Being of Parmenides. But at least one profound student of Hegel, Dr. McTaggart, has tried to show that Hegel's Absolute is not a unity in which all differences disappear, but an impersonal unity of finite but perfect selves.[2] That such an interpretation is possible only proves that pluralism is a very noticeable feature of Hegel's doctrine. The truth is that Hegel is much nearer to Leibniz in his outlook on the universe than is commonly supposed. Like Leibniz he conceives of the world as an organic unity of

[1] *Op. cit.*, p. 276.

[2] See chapters on "Human Immortality" and "The Personality of the Absolute" in *Studies in Hegelian Cosmology*.

spiritual beings, each of which ideates the whole universe from its own unique point of view. The main difference, and it is a very important difference, is that while Leibniz is not quite clear as to the nature of the monad of monads, sometimes conceiving of it as external to the monads that compose the world, sometimes reducing it almost to the preëstablished harmony, and sometimes viewing it as immanent in the world-system in spite of its independence of that system, Hegel regards the Absolute not indeed, as Dr. McTaggart thinks, as an impersonal unity of persons, but as the universal self which is particularized and completely present in every one of its constituent selves. The universal self has no content other than the individual selves. It is the organic unity of them and has no existence apart from them. Its relation to its component selves is analogous to the relation of the unity of our own self to its determinations. The human self is not a mere aggregate of its states, nor, on the other hand, is it something by itself, apart from its passing modifications. Its unity is expressed completely and indivisibly in each of its determinations, and, though it has no content other than them, it is not a sum of them but their ideal unity in which their differences are at once preserved and annulled. The Absolute of Hegel is subject-object. It is the all-inclusive unity which is bifurcated into the subject, which is such only as it goes out of itself to the object (the good), and the object, which is real only as it centres itself in the subject (the true). The necessary counterpart of the subject is the object. But the object is not a bare unity: it is a complex system of interrelated things. Now it seems to me that where most of the commentators of Hegel have gone wrong is in conceiving of the Absolute as subject, which is the correlative of the Absolute as object, as a monadic unity. But how can the counterpart of a *system* of things be an undifferentiated unity? It is no answer to say that the subject is differentiated into objects. In being thus differentiated the subject is not separated from its objects, but goes forth to them and, undiminished and undivided, is present to each one of them as its sustaining principle. To see this is to perceive that

the universal self is no mere unity but a totality of the selves of these objects. In other words, within the all-inclusive unity of the Absolute, the correlated elements, the subject and the object, are not, the former one, and the latter many, but each of them is at once one and many. Every object has behind it the universal self and is, therefore, ideal-real which as real excludes all other reals held together in one world, and as ideal embraces within its consciousness and from its special point of view as the self of a definite object the whole of that world. And as all objects are comprised within the unity of the world, so the interpenetrating selves of these objects are unified in the Absolute self.

I have elsewhere[1] tried to set forth the reasons which lead to the conclusion that this is the real view of Hegel, the Leibnizian cast of which is evident. It is the view which is distinctly suggested by Plato's conception of the Good, and the indebtedness of Hegel to Greek philosophy and particularly to Plato and Aristotle must never be forgotten. The very divisions of his system—Logic, the Philosophy of Nature, and the Philosophy of Mind correspond to Plato's classification of philosophical topics into Dialectic, Physics, and Ethics; the name given to the method employed and its spirit is the same, and one would not be far from the truth in maintaining that the idealism of Plato supplemented by Aristotle's conception of the material world as evolving from potentiality to actuality, as seeking to realize explicitly the form which is immanent in it and is its moving principle, furnishes much of the material of Hegel's philosophy.[2] It really arose from the study of Kant with the eyes of Plato and Aristotle, and of Plato and Aristotle with the eyes of Kant. The likeness between Hegel's Absolute Idea and Plato's Idea of Good, somewhat remote though it may be, is unmistakable. Just as the Idea of Good is not a unity reached by abstraction but by synthesis, a unity which organically connects all other Ideas with each other and with itself and gives to each its proper place

[1] In my *Hegelianism and Human Personality* published by the University of Calcutta.

[2] The Platonic influence on both of them, no doubt, largely accounts for the similarity between the views of Leibniz and Hegel.

in the total system, the Ideas being not mere things nor mere concepts of the mind but thinking beings, so the Absolute Idea, if we rightly view it, is the subject-object which, as subject, is a community of selves and, as object, a system of interrelated things.

Hegel's view of the relation between the finite and the infinite expresses his meaning. The infinite is not an endless series of finites, nor is it something beyond the finite. On both of these notions he pours contempt and points out that an infinite which is other than the finite stands limited by it and is, therefore, only another finite. The genuine infinite is *in* the finite and is its ideality. This means that everything which we call finite has a double aspect: as a particular object limited by other objects from which it is distinguished, it is real; but as that which returns upon itself from the process of going beyond itself that makes it finite, it is ideal. This ideality of the thing makes it an independent being—a being-for-self. The whole tone of Hegel's discussion of the categories of ideality, the infinite and being-for-self shows that he does not mean by these terms a merely general principle of the unity of all things, but a principle which is general by being in the first instance the ideality of each particular object. At this stage he emphasizes the plurality rather than the unity of things: the category of being-for-self leads directly to that of the one and many. Hegel's ideal-real is very similar to the monad of Leibniz which has the whole universe as its object of thought, though, as an individual, it has its special position in the world and excludes and is excluded by other beings like it. "Ideality only has a meaning or import when it is the ideality of some thing: but this something is not a mere indefinite this or that, but determinate being (there and then) which is characterised as reality, and which, if retained in isolation, possesses no truth."[1] What is clearly meant is that every finite object is *also* ideal; reality and ideality are two aspects of one and the same thing.

But the ideality of a thing makes it go beyond itself and bring the whole universe within the sweep of its comprehension. In

[1] Wallace's *The Logic of Hegel*, 1st ed., p. 154.

other words, the ideal principle is at once individualizing and universalizing. If it makes the individual what it is, it also brings it into connection with other individuals and reduces them to a system, in the whole and in each element of which it is concretely embodied. This is the aspect of the truth brought out in Hegel's doctrine of the notion. The notion is a concrete universal which particularizes itself in each individual; and because it is a universal, it cannot be confined to any particular individual but passes beyond it to other individuals and thus becomes the immanent bond of union between them. The individual in which the notion is expressed is not, it is needless to say, a part of the notion; it is the *whole* notion in a particular form. The individuals, therefore, are also the universal, and the universal is also the organic unity of the individuals. The universal, that is to say, is a "macrocosm made up of microcosms which is all in every part." The notion as a spiritual principle of unity of all things, as that which connects all things with and yet separates them from each other by its presence to each one of them whole and undivided, must be conceived as mind. "It is one of the deepest and truest instances of insight to be found in the *Critique of Reason*," Hegel tells us, "that the unity which constitutes the essence of the concept is recognised as the original synthetic unity of apperception, as the unity of the 'I think' or of self-consciousness." Now if the notion's own specification "can only be an existence in which it appears as identical with itself and whose factors are notions posited by itself," and if the notion is self, then it follows that the ultimate reality must be viewed as a self of selves, a universal self that finds expression in its constituent individuals which also are selves.[1]

It appears then that Hegel does not conceive of the world as centred in a single undifferentiated self. Each object, in so far as it is ideal, is the centre of the world-system; but as the objects mutually imply each other and therefore constitute *one* world, their selves also come together and constitute the one

[1] The Absolute Idea, which is the final category of Hegel, is what the notion is. It does not contain any new determination but unfolds explicitly all that is implied in the notion.

universal self. Or, to look at the same truth from the other side, the universal self manifests itself in a plurality of objects and is, therefore, differentiated not merely into these objects but also into their selves. The Absolute self, in short, is, if one, also many: it is a one-in-many. It cognizes the universe from all possible points of view and its knowledge of it from the standpoint of a particular object is the ideality of that object.

In the philosophy of Lotze, we find the principles of Leibniz developed along monistic lines. Lotze avowedly builds on the foundations of Leibniz, but he restores to the world the unity which, in his view, Leibniz destroys. This charge, however, is not entirely true. Leibniz, no doubt, begins by emphasizing the separateness of the monads, but, in the end, he is compelled to conceive of them as proceeding from and depending on God and as organized by Him into the unity of a coherent world. Lotze makes this deeper thought of Leibniz prominent. He shows that so far from being independent of each other, things are real only as they are related to each other. To be is to stand in relations. But the relatedness of things cannot be made intelligible unless we regard them as modes of the one all-embracing Absolute. And as the Absolute is mind, its modes which appear to us as sensible objects must also be conceived as minds. Lotze is fond of emphasizing his difference from Hegel, but no careful student can fail to perceive the similarity of the reasoning by which he is led to his conception of the Absolute, to that of Hegel. His discussion of substance, causality and the interaction of things, corresponds closely to Hegel's treatment of the categories of substance, causality and reciprocity. And the argument that things can determine each other because they are expressions of an underlying unity is only another form of the reasoning which leads Hegel from reciprocity to the notion. If due stress is laid on the pluralistic element of Hegel, his kinship with Lotze and of both with Leibniz cannot fail to be apparent.

The fundamental idea which Leibniz was the first to introduce into modern philosophy and which in one form or another has been retained by Kant, Hegel and Lotze is that the world, in

its last interpretation, is spirit whose nature it is to be one in many. Leibniz was never able to reconcile unity and plurality in a consistent manner, but he distinctly accords recognition to both of these aspects of reality. The unity of the world is due to its being the embodiment of the purpose of God, but of the relation of God to the world, Leibniz's conception, as I have already remarked, is somewhat nebulous. Kant, like Leibniz, conceives of the 'things-in-themselves' as minds grounded on God and, therefore, inherently connected with each other. Very similar is the idea of Lotze. Both agree in thinking that God transcends and is also immanent in the world, but neither seems to comprehend the significance of the great thought of Leibniz that every monad is a complete reality and is cognizant of the whole universe, at least potentially. Hegel, on the other hand, adopts this view and regards every object, in so far as it is ideal or being-for-self, as the notion itself in a determinate form and, therefore, like the notion all-inclusive. But he rejects the doctrine that God transcends the world. The Absolute experience contains nothing more than the experiences of the selves in which the Absolute is individualized and is the synthesis of them. It is the fusion of the different ways of representing the one world from the view-points of the individuals that compose it.

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THE SUBJECT–OBJECT RELATION.

IN seeking a sane and consistent account of human experience, of things, of ideas, and of events, of the world and of our life in it, human science and philosophy are ever dealing with subjective perceptions of objective phenomena and with concepts developed from subjective perceptions. The properties of objects, the relations between them, and the facts of common knowledge, are known mostly through the correlative qualities of perception and the quantities of relative measurement. These involve *special* subjective judgments, volitions, and values, as well as the general conceptions and the norms of knowledge and function.

To be sane, or true, thought and belief must be consistent with coherent, organized human experience, with common knowledge of such, and also with synthetic science. To be consistent, our theories and doctrines should proceed from true knowledge by some method of valid reason or logic. Live we may, or must, in a helter-skelter course of experience, mainly by *apprehension* of momentary, personal sensations and ideas, by instant recognitions and ever various interests, purposes, and actions, but we can *know* and *reason* only through coherent and consistent *comprehension* of certain essential relations in which things subsist and exist and appear. Without consistence life may indeed have its values, but reasoned thought without consistency is valueless and vain.

There should be consistence between the recurrent, recognized, and assimilated data of subjective apprehension (or perception) of individual experience and the composite social products in what objectively we call 'common' or verified knowledge and synthetic or 'organized' science. The conceptual science that is based on this empirical ground should be logically as well as psychologically consistent with it. And rational philosophy should be in higher consistency with conceptual science.

In a prior article[1] it was said that philosophy cannot well proceed without better comprehension of the logic of relations. The opinion may now be added that philosophy cannot emerge from the clouds of its controversies into the clear light of truth until it can state in unambiguous, intelligible language a perspicuous, consistent, and tenable doctrine of the relation that is most appropriate to philosophical discussion, the relation of the subject to the object, the relation of knowledge to reality.

The term *reality* has, like other fundamentals and ultimates in philosophy, been beset with many confusions. It goes hither and thither like a tennis-ball. In language and in literature the real is customarily opposed to the ideal. In modern philosophy, however, 'reality,' contradistinguished from 'appearance' in the substantive sense, like that term vacillates between subjective and objective meanings, and may even be confused with the ideal. It is said that the 'objects' perceived are but appearances, or phenomena, or 'sense-data,' that these are mental, psychological, not physical, material, or external to the mind; that these mental percepts, or ideas, are what we know, and that these and the concepts developed from them are the 'realities.' Ideas are the only realities, maintains the idealist.

"There is nothing unreal," says the philosopher Green, making the term *real* coextensive with the term *existent;* and "the work of the mind is real"; and again, "the question what is real is unmeaning because it could only be answered by a distinction which would imply that there is something unreal."[2]

So all things are ideal, and all things are real; real things are but ideas, and ideas are real. This seems to be the net result of an interminable circuitous discussion. In so far as philosophy is an investigation of reality and of knowledge, its main problem evaporates in meaningless verbiage, unless these terms *real* and *ideal* be definite and distinct.

The go-between in the epistemological game in recent years has been the change-coat term *appearance*, which passes now as objective and now as subjective, being no less prone to such

[1] PHILOSOPHICAL REVIEW, January, 1915.

[2] T. H. Green, *Prolegomena to Ethics*, pp. 25 and 29.

ambiguity than *knowledge*, *experience*, and others of its philosophical kindred. The appearance has been confused with the physical object; it has been merged with the mental percept in the subject; and it has been hypostatized as the *sense-datum*, "*tertium quid* floating between subject and object." It is indeed proper that the appearance should be distinguished on the one hand from the physical object and on the other hand from the subjective percept of the object; but to maintain that it is a sublimated entity transmutable from the mysterious category of the physical to the ineffable category of the mental is to perpetuate the cult of the veiled metaphysician and the verbal prestidigitator.

An appearance is neither a physical object, nor an idea, nor a distinct entity existent somewhere and somehow between the subject and the object, but an *aspect*, or *state of being*, or *action*, in which or by which the object produces *a specific correlative percipient state in the subject*. The appearance subsists only in this special correlation. When the object appears to the subject, whether as a result of action on the part of the object, or on the part of the subject, that *objective appearance* produces a *correlative subjective percept*.

We should not say that a mirrored image *exists* either in or behind the mirror, but that it *appears* there, or *appears* to exist there. Nor should we assert that properly it exists in the eye, nor even in the brain. The perceptual image subsists in certain correlations between specific properties of the object and of the mirror and similarly specific impressions and dispositions of the eye and brain of the subject. The *appearance* is conditioned by this correlation of physical to physiological and to psychological elements and actions. Without the brain there would nevertheless be reflected light of specific qualities, which might impress the retina, but there would be no visual correlate. Without the eye there would be the reflection of physical light from the object, and perhaps physiological stimulation of some other organ, perhaps the memory of a similar object; but there would not *appear* a 'visual image' of this particular object. Without the mirror there would not be the special reflection, not this particular

appearance, or image, of the object. Spatially between the existent object and the correlative percept there exist physical media and physical actions, but not 'visual images,' or appearances, or 'sense-data,' not as the object, the mirror, the retina, and the retinal impress are existent. Nor are the data of the senses given otherwise or otherwhere than as mental percepts arising from the specific cerebral sensations.

We term the object 'external.' What then do we mean by *external* and *internal* to the mind, or to the self? What is the mind? How shall we define *self*? Answers to these questions should be unfolded carefully, if we would avoid confusions of thought and terminology.

Nothing is more evident or better known to me than that the objects or actions that I perceive or believe or infer to be external to myself *are* so, veritably, really, while my percepts or ideas of them are within my unitary, self-conscious mind, or coherent with it. This distinction is fundamental, intuitive to the human intellect and habitual to common sense. It is equivalent to the distinction between objective and subjective (where the term *object* is not confused with the term *phenomenon* or with the term *appearance*); it is assumed by scientific thought and it is postulated by realistic philosophy. It may be called an assumption, dogma, or faith; but no thinker has right or reason to call it a mere theory, or belief, or delusion. Those who would either rationally or pragmatically deny its validity should proffer in lieu of it some other truth more consistent with logic or of higher value to the human understanding. If this postulate 'begs the question wholly,' as opponents of realism may reply, then 'the question' is unmeaning and philosophy indeed worthless to humanity. If logic must beg, it were better to beg from our human nature than from some inhuman and no less ungodly metaphysics of mystery and confusion.

But there is an inherited human difficulty. Our thoughts and our language, though ever subjective, deal more expressibly with the objective. And it is easier to determine what things are external to the body than what are external to the mind. My eye is internal to my body and to my person, but, though not

directly external to my sight and to my mind, it may in part become so *indirectly*, as in a mirror or in a picture. My tongue is internal to my body, but, when I protrude it, I can see it. Other internal parts may be felt, or may be objective to other senses than the sight. The brain within the body seems, however, accessible to sense only in the most subtle sensations. The brain as external to the mind is to be distinguished from the various states of consciousness that cohere in the contents of mind, are *internal to the mind*.

By processes similar to the apprehension of cognitive and affective data from objects external to the body consciousness apprehends its own mental states and contents subsisting *internal* to the mind and to the self in specific relations, in specific modes, and with specific qualities. There may not as yet be a clear distinction in psychology between cognitive and affective states; cognition is not exclusive of all feeling, nor is there qualitative, discriminative feeling without implied cognitive perception; but in the cognition of the *internal*, or mental, or in introspection, it would seem that the *affective* and *conative* modes or components of the conscious states are more vivid, whereas in the cognition or perception of *external* objects it is the sensational modes or components that are the more intense, and the reference to relations is perceptual rather than conceptual.[1] The external is apprehended more or less indirectly or mediately and some of the mediate stages of the process may have subtle effects on the correlative mental states. Of these effects there may be even physical or histological correlates, as is suggested by Professor

[1] The empiricist view was well expressed by Professor Wilhelm Ostwald at the opening of his address on "Methodology of Science" before The Congress of Arts and Science at St. Louis in 1904, as follows: "One of the few points on which the philosophy of to-day is united is the knowledge that the only thing completely certain and undoubted for each one is the content of his own consciousness; and here the certainty is to be ascribed not to the content of consciousness in general, but only to the momentary content.

"This momentary content we divide into two large groups, which we refer to the inner and the outer world. If we call any kind of content of consciousness an experience, then we ascribe to the outer world such experiences as arise without the activity of our will and cannot be called forth by its activity alone. Such experiences never arise without the activity of certain parts of our body, which we call sense organs. In other words, the outer world is that which reaches our consciousness through the senses." (See the publication, Vol. I, p. 333.)

Sherrington in his hypothesis of the *extero-ceptive* and *proprio-ceptive* stimuli.[1] If so, the phrase 'mental contents' is no mere metaphor but is justified as literally true.

The terms *consciousness*, *mind*, *subject*, *self*, and *person* are not strictly synonymous, but have their connotations so implicated that they are very likely to be confused, unless they are carefully defined. Whatever it be, consciousness may in introspection and in memory objectify some of its own subjective states, though not visually nor sensationally; and such are external to the present subjective state, yet internal to the continuous mind and personality of the self. In general, the subjective states, and the subject, are internal to the mind, to the self, to the person, though in a different mode of internality than that in which the self is internal to the body, a mode having more of temporality than of spatiality.

The relation of the consciousness and the mind to the brain is inferential rather than known intuitively or introspectively. There are sufficient physiological evidences of neural reaction and cerebral response superinducing mental activity to yield a valid induction of that conclusion. But the relation of the subject to the self is both intuitive and introspective rather than rational. As consciousness is the subjective mental part of the self, so mind, the synthetic content of consciousness, of knowledge, and of memory, is the mental part of personality regarded objectively. *Self* here has subjective and *personality* objective connotations.

Consciousness normally does somehow with clarity and the best attainable certitude distinguish between what is internal and what is external to the mind or self, between the subjective and the objective. It is the humanist's slur upon human reason that rational philosophy has not set forth this distinction with similar clarity and certitude.

When the phenomenalist says that the object which appears to him is but a *phenomenon* or *appearance* of what is in itself unknowable, he logically confuses the apparent or *perceptual object* with the existent or substantive object, of which appear-

[1] Sherrington, *Integrative Action of the Nervous System*, pp. 129–130.

ance is predicated; that is, he confuses the complex Ar with the relation A, or even with the relation r, when he goes a step farther and says that for all we know there may be nothing physical correlated with the perceptual phenomenon, and that what is unknowable is non-existent. His implications are even self-contradictory. There cannot be an appearance, if there be nothing to appear. The predicate implies the substantive. Appearances are of things that appear, and so are phenomena; and the things exist there, even though they be but partly apparent and imperfectly known.

When the empiricist states that his experience is of experiences only, not of 'things' existent external to him, and that these appearances, or experiences, are but mental contents, sensations, percepts, or ideas, his view differs from the phenomenalist's only in that he confuses the appearance with the percept, the relation r with the other relatum B, that is, he confuses the appearance predicated of A with the *mental correlate of A;* or with the complex rB, which is this substantive correlate B in its predicated relation r.

From these confusions it is a facile transition to the subjectivism, or idealism, which maintains that the mental content is all that we experience or know, that it is this, not some supposed external entity, which 'appears,' and that this *idea* is the 'object,' or, conversely, that the object exists only in the idea, in the mind. This is confusing Ar, the object-as-it-appears, with rB, the mental percept correlated with the object, and then mistaking B for A, the percept, or idea, for the physical object.

This epistemological monism has its counterpart in the doctrine of certain 'new realists,' who, turning the idealist principle inside out, assert that A is B, that the object, when known, enters directly into the mind, or consciousness, and becomes one with the idea of it; or that percepts, ideas, the mind, are projected into the objects, or the objective field, in which the real objects exist.[5]

[5] Which view predominates in the doctrines of the 'new realists' I cannot make out. In an acute criticism Professor Lovejoy interprets them as claiming a capacity for consciousness that even idealists might indeed regard as beyond their powers of mentality or imagination. ". . ., according to the theory in question, what

But, granted that these epistemologies all confuse subject and object and appearance, there remains the problem of knowing with certitude whether particular percepts are correlated with 'real' objects and which of them are ideal or are mere subjective illusions. In attempting to meet this difficulty, let us consider a single object as simply as may be, for instance, a silver coin which I happen to see lying on the floor. Believing my sense of sight, I reach down and pick up the coin. Believing then my sense of touch, I put the little, round, metallic disk into my pocket. Later I go to buy something, and then find it there in my pocket, and it is accepted at the store as good; and what it buys is good and real. I have simply believed my senses, and the shop-keeper has believed his. Here are indeed beliefs, but not proofs. The evidence, you may say, is not sufficient to *prove* that the object so believed in exists external to my mind and to the shop-keeper's. What is taken for a coin may be only a button; its appearance to my sight as a coin may have been an illusion, and this illusion may have been transferred to my sense of touch and afterwards suggested to the shop-keeper's mind. Furthermore others may partake of the illusion. A society of minds may be involved in an error of social psychology.

'enters consciousness' is just this actual, simultaneously existing object—not a substitute for it." *Johns Hopkins Circular*, 1914, No. 3, p. 52.

But the opposite mental feat is performed in Professor Holt's contribution to *The New Realism* (pp. 354–5): "The entity responded to is the color out there, two factors which involve two factors of response; but *that color out there* is the thing in consciousness selected for such inclusion by the nervous system's specific response. Consciousness is, then, out there wherever the things specifically responded to are. . . .

". . . the class of things which we name a consciousness. . . . But consciousness is in no sense at all *within* the nervous system."

This merging of the ejected idea with the external object is no less positively stated by Professor Perry. "The new realism, while it insists, as all realism must, that things are *independent*, asserts that when things are known, they *are* ideas of the mind. They *may* enter *directly into* the mind, and when they do, they become what are called ideas. So that ideas are only things in a certain relation; or, things, in respect of being known, are ideas." *R. B. Perry, Present Philosophical Tendencies*, p. 308. On page 320, however, this effort toward epistemological monism lapses into a modified dualism, though still somewhat confused: "Of course, the *consciousness of a thing* is made up of the thing and its relation to consciousness. . . . If *a* is in relation to consciousness, then *consciousness-of-a* is constituted in part of *a*, but *a* itself is not constituted of consciousness."

Life everywhere may be illusory, subjective, or ideal. For one can never be positive that an object appearing to him exists independently of his own mind, or that, if existent, it is like his idea of it.

This logical negation may be admitted, but it in turn *proves nothing itself but the uncertainty or fallibility of knowledge.* It does not *disprove* that the object exists externally; it does not *prove* that the object exists internally to the subject; it establishes no truth, no reality. Its logical result is negation in epistemology, and agnosticism in ontology. Idealism should rest on better assumptions or truths than this, or its basis would be as inane as its structure would be illogical.

My subjective impressions, or the shop-man's, may in the case of the supposed coin prove illusive or erroneous; we may have but a button or merely an idea of a coin; and we may later discover the illusion. What, however, would such disillusionment imply but that there is a normal verified reality to which unreality and error are contrasted by normal minds. Appearances may be partly erroneous or wholly illusive and many minds may partake of the illusions, yet this uncertainty by no means justifies the argument that appearances are *always* illusory, perceptions wholly erroneous, objects completely mental, *never* external to and independent of subjects, nor ever existent for a plurality of subjects. Nor does occasional error and the imperfection of knowledge justify the doctrine that, even if there be external objects, we have not knowledge of them but only ideas of appearances, which are not truly correlated with the real objects, are unlike them or are illusive.

We should here consider the terms *correlated* and *like*. Relata may indeed be unlike in some respects and yet be positively alike in respect of the relation apprehended. An external physical object is unlike the subjective idea correlated to it, as the sounding bell is unlike the sound of the bell, or its action, or shape, or color, or any separate quality or incomplete aspect of it, or as the physical color of the rose-petal is unlike the mental percept of the rose-petal's color. The persistent antithesis between the physical and the mental truly obtains in such proposi-

tions. Yet in another respect the auditory sound *is* like the vibration of the bell, as it is dependent upon it; and the color-qualities of the petal seen by the normal eye are like the color-properties of the petal reflecting the special light. This likeness is more than mere correlation and dependence. The subjective quality may be and normally is correlated truly, qualitatively and quantitatively, with the objective property and action perceived, and in this respect renders true knowledge of it.

Percepts are thus correlative to external objects, even though they be in some respects unlike them and sometimes erroneous and illusive, sometimes modified or almost made by the subject, that is, more or less ideal. While their appearances are thus *partly and contingently* dependent upon the subject, they are *completely* dependent upon the object, as a complex of elements and properties determining the organic stimulus and its psychical response, that is, the qualities of sensation and the contents of the cognitive states. More minute physical analysis of the properties and elements of the object and acuter psychological analysis of the qualities and components of the subjective states probably would scientifically confirm this inference of the complete and even quantitative dependence of the percept upon the object, except in cases of hallucination and error; and these are to be explained by special psychological analysis, with reference to genetic and mnemonic antecedents, or prior similar experience, or appearance of similar objects.

But these questions would lead us too far afield for the present purpose, which is to negate the argument that occasional or possible error justifies the doctrine that appearances are *always* erroneous and that through them we can not have knowledge of external objects but only of internal phenomena; then that in perceiving or knowing objects, or knowing of them, the mind wholly creates them, or at least so largely modifies them that we must regard them as mental.

It is needless to elaborate here an argument against idealism and subjectivism, for that has been done well and convincingly by others in recent writings. "Idealism's claims can be substantiated only provided it is true that *to know is to generate the*

reality known. It must be proved that the being and nature of things are conditioned by their being known." "If consciousness is construed as owning its objects, so that they arise and perish with its several acts or states, then the knowledge of the same thing by different knowers or by the same knower at different times becomes impossible. There can be no *real* identity, but only a manifold of unique and irrelevant units of consciousness." "It postulates an independence in the case of one consciousness which cannot on principle be denied to others, and which is self-contradictory if generalized." [1]

The postulates which oppose phenomenalism, subjectivism, idealism, and epistemological monism may now be stated more definitely. *Objects exist external to and independent of subjects.* An object may contingently be cognized by a subject or by several subjects. A subject cognizing not only external objects but internal ideas, or mental images, normally distinguishes intuitively between the two kinds of cognitive contents.

The term *object*, however, in distinction from the terms *entity* and *existent*, implies not merely existence in relations but the special relation of *appearance* to a subject, or to subjects, so qualified and so related as to apprehend such object. The appearance is dependent upon the object, or at least upon some elements or properties of its complex constitution; it is also dependent upon there being a subject, or subjects, in cognitive relations to it; but the *existence* of the object is *not* dependent upon *appearance* to a subject, nor upon any subject whether individual or absolute, except as this may contain or cause or change it. There can be no *appearance* without an object, and no object that is not an existent entity. When without a present or coexistent object there is a subjective mental content, this is an idea or image, but it is not an *appearance;* it does not now *appear;* it is not a *percept*. Appearance and perception are

[1] Perry, *op. cit.*, pp. 119 and 317, and *The New Realism*, p. 146. These quotations suggest a facetious passage of Professor Fullerton's (*The World We Live In*, p. 40), appealing to common sense and pleasing as polemic: "I cannot believe that my garret and my cellar spring into being alternately as I travel up and down the stair; nor can I be persuaded that, to have a whole house at once, I must either turn theist or distribute my family in the various rooms and beg my neighbors to watch the external walls and the chimneys."

predicative only of external objects appearing to percipient subjects. These are important distinctions in terminology. It is also a question in terminology whether things that are not in the present relation of appearance to a subject, or to subjects, but are of past or future time or are distant, are to be termed objects, or existents, or realities.

The *subject* is that to which objects appear, have appeared, or may appear. Continuity and coherence of the subjective states are implied. The subjective correlate of the single object, as distinguished from its external relations and from other objects, is the mental *percept*. The object is indeed to be distinguished from this subjective percept, or mental content. The subject conditions the *perception*, or the *knowing*, or the *percept*, or the *subjective knowledge* of the object, but the subject does *not* in any proper sense *make* or *create* the object. The object on the contrary determines and qualifies the subjective state. In other words, the subject's *knowledge of the object* depends upon the object's existence, properties and characters, and also upon the subject's presence, dispositions, and peculiarities.

When the subject and the object are in the special relation, the subject perceives or knows the object, and the object *appears* to the subject. It is that relation, or action, or complex of existential, physical, and psychical relations, which is the appearance, or determines the appearance. *Appearance is a relation*, in which object appears to subject; it is predicated of the object, but it is not a *quality* of, and is logically distinct from the object.

By metonymous extension of meaning the term *appearance* is commonly applied to the apparent qualities of the percept in their combination. It is through certain qualities that a thing becomes apparent and is recognized. The appearance of a summer cloud in a sky that was cloudless a moment before depends physically upon the properties of vapor and of sunshine and of light reflected from a mist of minute spherules suspended there. Strictly speaking, none of the qualities correlated with those properties, nor the combination of any of them, *is* the appearance; but they determine or qualify the percept, or the

perceptual 'appearance' of the cloud. Colloquially then or in literature we may well allow such transferred meanings, but in philosophy it is important to distinguish between the object, the percept, and the appearance.

Perception is not a relation, nor a mental content, but a psychic process. It may, however, be found to reduce to a complex of actions and of relations. But the *percept* is a mental content, or psychical state. Where there is a percept there is an object perceived. We should, however, avoid applying the terms *object*, *appearance*, *percept*, and *phenomenon* to the distinctively mental, psychical, and ideal, to the images and ideas of memory, imagination, illusion and hallucination. Epistemology should distinguish between the appearance, predicative of the object, and the percept, substantive in the subject. To state that the percept appears is like saying that perception is appearance, is to confuse the subjective with the objective aspect of the correlation. Yet on this confusion rests the argument of phenomenalism and of empiricism.

The term *phenomenon*, which has been synonymous now with object, now with appearance, and sometimes with percept, may be differentiated as the *apparent object*, implying incomplete correlation or perception, that part of the object which appears, not the real or the complete object. It would thus be the objective correlate of the subjective percept, and appearance might then be predicated of the phenomenon more especially than of the complete object. Looking out of my window, I see a house beyond the gardens. It is not the entire house that I see, not the interior, not the other side, not the wood, but the paint covering it, and so forth. The unitary *object*, the *thing* that exists there is the *entire house*, but to perception certain parts only appear, and to these in their combination and in the special relations the term *phenomenon* may distinctively be applied.

The relation of appearance and the objective phenomenon are thus in dual dependence upon both object and subject, and contingently so. Percepts as well as images and ideas are likely to be more or less imperfectly or erroneously correlated with the

objects on which they are contingently and qualitatively dependent; for perception is subjectively selective of elements.

In memory and in illusion the images or mental contents of whatever name are indeed mental; the stimulus is internal, psychical; the physical object is not present; the special sensation and the 'appearance' are not actual; the images and the percepts are dependent at least in part upon past appearances of physical objects. In error and hallucination the ideas are contingent in varying degrees on remembered objects and on falsified relations.

The object, existing external to and independent of subjects, may appear to any subject that is so qualified and so related as to apprehend it. It is not the exclusive property of one subject, but may be apprehended by any normal subject. Your perceptions will lead you to apprehend the very things (though perhaps with varying qualities and in various relations) which my perceptions discern, and which I may describe to you; and we can communicate with each other the sense that our percepts are like and are correlated with objects in the same existential relations. We therefore infer and believe that we both perceive the same objects, and that other subjects may likewise perceive and know them. "Your objects are over and over again the same as mine," was Professor James' simpler way of saying this.

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DISCUSSION.

The Dualism of Mr. P. E. More.

IT needs some temerity to attempt a criticism of either the philosophy or the social theories of a thinker so generally sound as Mr. Paul Elmer More. Yet when the assertion is made by Mr. Randolph Bourne that Mr. More's social theories are based upon modern pragmatism, and when one recalls how stoutly Mr. More opposes the philosophy of change, it seems desirable to look again at his philosophical system to discover what warrant may be found for an assertion so unwelcome to him. Mr. Bourne has pronounced a half-truth. As one studies Mr. More's philosophy, one inclines more and more to the conclusion that his theories of society and government are not the result of his philosophy, but rather that his philosophy was put together in explanation of his more important ideas. For this purpose he seems to have found it necessary to adopt in his practique many empirical and so-called pragmatic doctrines, while his desire for a principle of restraint, both upon the individual and upon society, for which modern pragmatists have made slight provision, inclines him toward idealism. Mr. More is, of course, not alone even among modern philosophers in his attempt to reconcile the discordant elements of empiricism and idealism; the history of philosophy from Aristotle to Bergson records many such efforts attended with varying degrees of success. It is the purpose of the present paper to show that the system of philosophy which Mr. More has set forth in his "Definitions of Dualism" in the eighth volume of *Shelburne Essays* is not really dualistic; that in its practical working it is partly pragmatic, and that in the last analysis it is essentially idealistic.

Mr. More does not invite non-dualists to criticize his philosophy, but by the time-honored assumption of superiority he sets it upon a height which he declares to be inaccessible to the non-dualist. "If a man denies this dualism of consciousness," he says, "there is no argument with him, but a fundamental difference of intuition, which will follow into every view of philosophy and criticism." The mystical member of this ill-matched pair is undoubtedly incomprehensible to the ordinary mind; yet, since Mr. More has after all but yoked plain matter with elusive spirit, one of its members at least is recognizable and stands our scrutiny, and it is plain to the most casual

reader that matter actually draws by far the greater share of the load. To change the metaphor, the dualistic theory is always in a state of unstable equilibrium, and although Mr. More throws much emphasis of importance upon the supernatural beam of his balance, the most valuable part of his theory inclines with all the weight of irresistible logic toward matter as the one certainty.

Mr. More avoids, however, these old terms, spirit and matter, in indicating the two poles of the dualistic universe, and I shall adopt his more definite phraseology. In the first place he conceives of matter almost exactly as the monists do (I use the word 'monist' simply as an antonym of 'dualist'), and speaks of matter, or the whole wide world, as the "flux of life." This matter he then somewhat forcibly separates into "inner desires" and "outer impressions." The term 'flux' is apparently selected to indicate the obviously changing character of the material universe. In the flux he includes the "mental activities," the reason, imagination, and memory, and the will, and an elaborate system of functional psychology. Over against these perfectly recognizable, if not entirely explicable realities, Mr. More sets his special manifestation of spirit, the "inner check," a something "within man which displays itself intermittently as an inhibition upon this or that impulse. . . . It is not the mere blocking of one impulse by another, which is a quality of the confusion of the flux itself, but a restraint upon the flux exercised by a force contrary to it."

By thus reducing spirit to its lowest terms,—an inner check acting intermittently upon the flux of matter, and by including among the powers of matter not only all mental activities but even the will, Mr. More abandons many of the contentions of Descartes and other earlier dualists and thus simplifies his problem. By so doing he does not, however, escape—though he refuses to consider—the insurmountable objections of the earlier opponents of the theory, that dualism, by definition, makes interaction between spirit and matter impossible. At times he appears to recognize an inconsistency—which he would no doubt dismiss as a paradox—for he says that the two, inner check and flux, are "coexistent and coöperative, yet essentially irreconcilable, forces." At other times he leans toward idealism and is inclined to make spirit dominant, for he says: "It may be surmised, but only surmised, that in some way the faculties themselves have been created by the action of a force within the flux obedient to the inner check, and that the regularity of their function depends upon the fulness of the control of this check." Such a

surmise is valuable only in showing the leaning of its author; the opposite may be as easily surmised, and with less difficulty established. But since Mr. More avoids this question, and since the history of philosophy adequately answers it, I shall confine my criticism to his chief contentions, that there is an inner check, that it does, somehow, sometimes, act upon the flux, and that this arrangement is somehow necessary for the ordering of human life.

Mr. More does not, however, make out a very strong case even for the existence of the inner check; his argument proceeds more easily if you will assume that point. Although he asserts that "the inner check is the same potentially in all men," he recognizes also that "the generality of men . . . are so intermittently conscious" of it as to require guidance from the more fortunate few. At the very best a good deal of suspicion must attach to a potentiality of this sort—it is too like a potential spring chicken in a basket of eggs; and no less suspicion must attend a dualism one member of which is of this dubious character. At least it seems reasonable to insist that a power of such singularity and importance as to warrant its being set off from all other powers whatever as not only wholly different from the rest of the world of experience but fundamentally opposed to it—that a power, so characterized, should be at least recognizable by all men without exception. And moreover we should like to insist that men should at least know that they possess it, since Mr. More makes it an object of consciousness. An intelligible system of philosophy cannot, of course, be based upon unperceived objects of consciousness any more than a system of dentistry can be based upon unfelt tooth-aches.

Mr. More does not shrink, however, from the dangers of proving the existence of this important factor in his scheme of the universe by the experience of the Pharisees only, and he asserts that knowledge of the inner check comes by and through its operations—that is, by and through its operations in those in whom it is more than a potentiality. We might be willing to admit this explanation of knowledge of the inner check if it belonged to the same order of existence as the will and the vermiform appendix, which certainly are used before they become objects of consciousness, but we rebel at having the sole manifestation of a different existence, and the whole basis of the dualistic theory, discoverable in so casual a way.

We must, however, for the sake of understanding this new-old philosophy, disregard for the nonce those in whom the inner check is only "potential" or very "intermittent" (we shall come back to

them later to see how they fare in life without this boon), and examine the way in which its existence is demonstrated in its possessors. "In the repeated exercise of the inner check," we are told, "we are conscious of two elements of our being—the inner check itself and the stream of impulses—as coexistent and coöperative, yet essentially irreconcilable forces." We shall not pause, since we are told flatly that it is a mystery, to question how these two "irreconcilable forces . . . coöperate and coexist," but we must ask, how is one conscious of them? Why, simply by perceiving in himself both 'change' and 'sameness': that is, "consciousness, the more deeply we look into ourselves, tells us that we are ceaselessly changing, yet tells us also that we are ever the same." This Mr. More dubs the "dualism of consciousness." But that is going too fast. In the first place we must object that the 'consciousness of dualism' is not 'dualism of consciousness' any more than 'consciousness of beauty' may properly be called 'beauty of consciousness.' Besides, the perception of 'change' and 'sameness' in the same object cannot give the object a dual character of such far-reaching significance. One's consciousness of 'change' and 'sameness' in a flowing river, for example, reveals not a dual river but different qualities in the same river. Mr. More further adds confusion at this point—though his purpose may be to avoid the difficulty of perceiving opposites simultaneously—by asserting two kinds of perception or knowing—one belonging to the flux, the other to the inner check—which are immediate, simultaneous and inexplicable. Granting the last as incontrovertible, we may certainly turn to experience and deny that one is actually immediately conscious of two orders of existence at once and with equal clearness. If monists and dualists differ upon this important question of fact, there is, of course, no argument, and the dualist will only scorn "the generality of men" whose experience differs from his.

We are thus baffled in our efforts to discover or to define the inner check. Are we then reassured by being told that the reason, itself 'an organ of the flux,' is prone to deny what it lacks terms to define? At least we know that the discovery that an idea is inexplicable, or mysterious, or even illogical has seldom in the history of the human race been a ground for refusing acceptance or belief of it. On the contrary, its mystery gives it a certain factitious value. And it may justify itself by its usefulness, and will be rejected only when discovered to be superfluous. We have been obliged to eliminate fairies, for example, from our scheme of things, not because they are any less wonderful than microbes, or electricity, or the force of gravity,

but because their place has been usurped by these scientific and rational wonders. Therefore we turn our attention to the so-called operations of the inner check upon the flux to discover whether it performs any indispensable functions from the lack of which we suffer.

We soon discover that the peculiar kind of knowing which we waived in order to discover what use was to be made of the inner check is quite as important as the inner check in the development of this system of philosophy; that both are inextricably bound up, for example, with the important problems of truth and morality. In this fashion. Upon the 'exercise of the inner check' depends 'self-knowledge,' and self-knowledge is the source of both truth and morality. In the first place, "as self-knowledge maintains a clear and unfailing consciousness of dualism, it is called insight"; and "as it denies the right of the faculties (*i. e.*, reason, memory, and imagination, which belong to the flux) to supplant this dualism, by their own abstractions and combinations, it is called scepticism." And "insight and scepticism are the two arms of truth." Which, if it means anything, means that by the 'exercise of the inner check' one is able to know in a peculiar way, and thereby gains an 'immediate vision of truth.'

This vision, of course, the generality of men are denied; they can only watch the possessor use his power. We first discover that this 'vision of truth' is not unassisted by the common faculties of the flux which every one uses; for "in all the business of life we are aided by the proper discriminations of the reason and the proper creations of the imagination." Nay, more, reason is even necessary; for it is constantly at work "discriminating the effects of the inner check in the sphere of the flux." This usefulness of reason and the other faculties tempts one to doubt the indispensability of the inner check. We begin to suspect that truth can be as safely reached by the exercise of 'right reason' as by 'immediate vision.' The more so since these two powers (which, be it recalled in passing, could never be brought explicably into coöperation) seem not to work harmoniously together. Though the action of reason and imagination is recognized as a "benefit," they are also in "continual assault upon the restraining power," that is, upon the inner check.

This conflict invites an examination of the kind of truth which each kind of knowing presents. Of the knowledge which is gained through the ordinary faculties we are told that it "may wander into fallacy and hallucination, but the sure penalties of practice prevent them from going far astray in the normal man." If there be any

obscurity here, it is cleared up by this explanation, which might have been taken from the latest book on pragmatism, for it is the so-called 'pragmatic test of truth.' "Knowledge of a particular phenomenon is reckoned accurate in so far as this general knowledge fits in with the knowledge reported by other persons." The errors of the faculties that operate in the flux, that is, are discoverable by further observation in the medium in which they occur, and truth and error are thus defined and distinguished with comparative ease.

Having discovered that one kind of knowing provides its own means of detecting and correcting its mistakes, we naturally ask how we may test the truth of 'immediate vision.' But here we meet with another unknowable. There is no way. Mr. More, however, does not raise the question in this case as he does in the other. Two explanations are possible and equally unsatisfactory. To the question-begging assertion that certain kinds of knowing carry with them their own guarantee of truth there is the objection that every hallucination, whether of sleep, spiritualism, religious enthusiasm, or pathological delusion, carries with it an assurance of truth which only further experience can set aside. In the case of the 'immediate vision of truth' such a test is emphatically denied. Another explanation, that the guarantee of truth rests in an absolute or infinite being, shelves the query, but does not answer it. After this we are disposed to cry out, with Mr. More, on those who disregard the experience which is at hand, and try to "explain the ultimate reality of things by abstract conceptions." Certainly we may conclude that in the search for truth we are better served by the faculties that belong to the flux, reason, and the tests of experience, than by the inner check and a superrational or intuitional kind of knowing.

We turn next to the field of morality where, if ever, we may expect to find the inner check indispensable. And at the outset it appears so. It is the source of character, which is the product of "disposition controlled by the inner check." Disposition is the element contributed by the flux; it is itself the result of "incalculable chance," the name which Mr. More gives to the familiar determinants, heredity and environment. In the moral world cognizance is taken of the fact that the inner check—by an equally incalculable chance—moves not in all, and we are told that, "as the common disposition of mankind is lacking in character (because of the intermittency of the inner check, of course) the will to refrain needs to be, and largely is, reinforced from without by the restraining influence of public opinion, fear of punishment, education, and mythology." Not only do these

latter aids to right conduct belong to the flux, but even the "will to refrain," we are told, belongs to the flux. The generality of men are thus abundantly provided with guides to action.

Moreover, the proper effect of this external check is a discipline which produces healthy instincts capable, under ordinary circumstances, of taking the place of character. In this fashion the inner check is removed from its position as the main element in character, and its place is taken, as it should be, by the discipline of the will. Indeed Mr. More recognizes the close similarity between the will and the inner check, and he tries to explain it by the unwarranted assumption that the will, though an activity of the flux, is the outcome of the inner check. Nevertheless he says that "at its highest development the will would appear to act automatically," and he further undermines his first contention, that the inner check is the source of character, by saying that "a man of character is one in whom a vigorous disposition is continually controlled by the habit of attention, or the will to refrain."

The inner check is thus admittedly superfluous, except possibly for emergencies. And if it be after all condemned to "fust in us unused," we may well suspect that in crises the disciplined will will be quite as dependable a guide to action.

When we consider the relation of the inner check to the question of moral responsibility, we discover that its action is either mischievous or superfluous. It is mischievous because, in spite of Mr. More's explicit assertion to the contrary, he disposes of the question of personal responsibility by actually putting the burden upon the inner check. To be sure he seeks to persuade us that he has not done so, by saying that "since the inner check is potentially the same in all men and differs only in effect as it acts or remains quiescent, each man is certainly responsible for his character or lack of character." Yet he admits that, since disposition, "out of which character is developed," is the result of "incalculable chance," we have a paradox of responsibility and irresponsibility. Mr. More is prone to dismiss a knotty question by calling it a paradox. This difficulty is even worse than a paradox. One dangerous element has already been pointed out, the dubiousness of a potential inner check of which most men are at best only intermittently conscious. That responsibility has really been shifted upon the inner check will become apparent from two more quotations in which its assumption of responsibility is explicitly asserted. "The morality or immorality of an agent is determined by the exercise or quiescence of the inner check." Before we have

propounded the inevitable question as to what determines the attitude of the inner check, we are answered that it is self-determined, and that "if the inner check permits full attention on the part of the agent, he will to the best of his experience choose the act which . . . is . . . right and virtuous." That is to say, the agent acts with full responsibility if he is unhindered by the inner check, over which, of course, his will has no control.

This assumption of moral responsibility by the inner check is interestingly paralleled by its control of the artist's imagination in the interest of a "common standard of excellence." Variety in works of art, we are told, is the result of the artist's imagination and the richness of his experience, both working in the flux. But they attain formal excellence only as "the imagination of the artist is subject to the control of the unvaried inner check." "Criticism is thus not left to waver without a fixed criterion," but by understanding dualism it gains a "constant norm of classification" amid the diversities of the flux. But it should not be forgotten that criticism by fixed standards went out of fashion rather more than a century ago, and has since been the subject of a good deal of opprobrium.

A 'common standard of excellence' that could be arrived at on the basis of experience, by studying and comparing various objects of art, would be as valuable as it would be understandable, but a standard that arises superrationally from within, under the control of an inner check, is at least open to the objection of irresponsibility, and offers no adequate explanation of the diversity of standards that undoubtedly exists. Most artists lay some claim to inspiration for their extremely varied works, but they cannot, obviously, all be controlled by the 'unvaried inner check.' Moreover there is no possibility of distinguishing true from false standards and inspiration. Why not, then, discard this very unruly and unnecessary absolute and seek a new definition and standard of beauty? Why not substitute for Mr. More's definition of beauty as the control of nature by a "force corresponding to the inner check", or the "visible image of the possible happiness of the soul", a standard of beauty based upon the comparison of beautiful objects and similar to his sometimes-used standard of truth?

Returning to the field of morals, we find, curiously enough, that although the morality of the agent depends upon the inner check, the rightness or wrongness of a particular act is determined, as truth sometimes is, by its consequences, *i. e.*, pragmatically. The inner check is definitely relegated to the background, and it again becomes

apparent that it is a superfluous activity. "The rightness or wrongness, virtue or vice, of a particular act," we are told, "is determined by the final result in pleasure or pain to the agent as an individual existing amid certain circumstances." Add to this the consideration that the agent "will to the best of his experience (that is, guided by his knowledge of the circumstances in which he acts) choose the act . . . which . . . is . . . right and virtuous," and we see that the inner check could easily have been dispensed with. Moreover the agent sometimes makes mistakes—which he certainly could not do were the inner check with its 'immediate vision of truth' in control of his actions—mistakes which arise from conflicting desires in the flux.

The agent is, however, able ordinarily to avoid mistakes and to judge of the results and thus of the rightness of particular acts by the "discriminating power of reason" aided by the "faculties of memory and imagination." Memory supplies the "material of judgment," and imagination lends "cogent realness to judgment." Furthermore, "the experience of society as expressed in precepts" forms a necessary supplement to the "insufficiency of individual experience." But reason, memory, imagination, the experience of society, are all elements of the flux. With these to aid in forming judgments of the rightness of particular acts with respect to their results in the flux, and with a will to restrain, also in the flux, which naturally chooses, under the direction of these faculties, the right act, what need is left for an inner check, which may only hinder attention and so interfere with a process that is adequate and complete without it?

The inner check is supposed to confer other benefits upon its possessor, benefits which appear, however, to be as easily attainable without it. By its aid Mr. More seeks to solve the problem of evil by claiming that the inner check confers the "only consolation" amid "the great griefs of life" which is "unmixed with shame and abasement." This is a great boon, one certainly not actually possessed by the generality of men. It were indeed well to know how it is to be gained. We are told that "true liberation" from grief "comes only with the knowledge of the universality of evil and pain in human destiny, and with the consciousness that something within us stands apart from the everlasting flux and from our passions which also belong to the flux." It is the latter statement that at once challenges examination. First, what is meant by the 'something within.' Mr. More does not explain, but he gives a cue to an explanation. He tells us that "the subjective reason deals with the whole material of experience" and is dominated not only by "outer impressions" but by

"inner desires." "By its means," he says, "we conceive our mental activities as discrete quantities." Then, by means of the "subjective imagination . . . we project our complex inner experience into nature as existences apart from the soul." That is, this 'something within' is, or should be, an abstraction, like beauty or truth, not really separable, or 'standing apart,' from the object possessing it, but only distinguishable from it as beauty and truth are distinguishable from the objects or circumstances in which they occur.

This 'something within' we may then very well designate as one phase of human experience, the human spirit, perhaps, which is superior to or triumphs over certain lower forms of the flux of which both are parts. The dualist, then, will have no monopoly of the comfort that comes from a feeling of superiority to the griefs of life. That there is no difficulty in speaking of such a superiority in the flux is evident since we recognize gradations in everything in the flux; we know that some mental activities produce more desirable results than other, *i. e.*, are better, and that right things and wrong things—right and wrong being determined by experience—exist together in the flux; and we may very well say that some things are so good as to be unharmed by the existence of evils with them in the flux.

Why then, since the qualities that belong to the flux,—reason, imagination, and memory, the will, the tests of truth and beauty, and superiority to evil, are the most valuable and only indispensable elements of this theory of so-called dualism, has not the author been willing to abandon his inexplicable and useless inner check? Because he is really not a dualist but an idealist. Because the goal of his philosophy is avowedly mysticism, and mysticism is unattainable except on the basis of idealism. Therefore, after building up a system of dualism, however tottering, he himself actually discards it for a system of mysticism which is really idealism. He denies, however, that his conclusion is idealism; he admits that it resembles idealism in that both start "from a conception of the absolute," but he asserts that mysticism is a "real knowledge of victory over the flux and not a rational denial of the flux." 'Real knowledge' is, of course, that special kind of knowing by which dualism and truth are immediately perceived, and it now serves also to give "moments . . . when the consciousness of the inner check is so overpowering as seemingly to sever the continuity of our impulsive life." As a result of these 'visionary moments' the power of the inner check is intensified, and the goal of man, through faith, is "the liberation from dualism." This I cannot believe means anything different from idealism, the

denial of matter, especially when I read further that, "life is but appearance, and this personality we call by our name is but illusion within illusion. As by the reason the inner check can be defined only in negative terms, so to the eye of faith the flux and all its manifestations, including reason itself, become the absolute negation.

> We are such stuff
> As dreams are made on, and our little life
> Is rounded with a sleep."

Surely it is only juggling with words to call this dualism.

The special criticism of idealism is out of place here. Objective idealism is, of course, invulnerable to the attacks of reason, but it is personal rather than universal; it is a religion rather than a philosophy.

To the ordinary man, then, it appears that Mr. More has done nothing really different from what he describes when he says that the faculties "fall into pure metaphysics, or ontology, when . . . they usurp the function of consciousness and undertake to explain the ultimate reality of things by abstract conceptions." And this practice he himself condemns when he says, "no metaphysical theory will ever unriddle the secret of the world." We are inclined to conclude that this theory would be really valuable as a philosophy of life only if we could discard its so-called dualistic character and say squarely and intelligibly that the inner check is only discipline, self-control, action with reference to truth—not absolute truth, but truth depending upon experience, and to moral rightness—not absolute rightness, but rightness depending upon experience, *i. e.*, results upon society, and if we should add that this discipline depends for its authority, not upon an unknowable, but upon the only reality, the world of experience. This world, moreover, we should recognize as one of which human knowledge is growing, and which is, at least to that extent, changing itself. Such a theory would have not only the merit of conformity to everyone's experience, but all the efficacy in the government of life that Mr. More's has, together with a reliable test of truth and full moral responsibility.

To the study of Mr. More's social theories belongs the discussion of the social implications of such an idealism and of the way in which the pragmatic elements which he introduces into it enable him partly to avoid the dangers to which they lead. Enough has been said, I hope, to make it reasonably clear that a sound social theory cannot rest upon such a basis. It is undoubtedly true, as Mr. More says, that the aim of a perfect government "would be to bring the character

of the few to bear in some effective way upon the impulses of the many," but it is equally certain that one does not, nor can, establish an "aristocracy of justice" by turning over the reins of government to the privileged possessors of a special revelation not vouchsafed to those they govern, nor yet to be questioned by them. Progress does not lie in the direction of a mediaeval pontificate nor the 'divine right' of kings. But at the expense of consistency in his philosophy Mr. More has effectively escaped the logical results of his theory by showing that character does not really depend upon his special revelation, the 'inner check,' and thereby leaving room for the establishing of an 'aristocracy of justice' based upon personal discipline and social responsibility.

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REVIEWS OF BOOKS

Essays in Experimental Logic. By JOHN DEWEY. The University of Chicago Press, 1916.—Pp. viii, 444.

Philosophers, like lesser mortals, begin by sowing a crop of wild oats. They pass through a period of youthful indiscretions. They have a past. Professor Dewey is no exception to this rule, but he is one of the favored few whose repentance takes the form of originality. It was by a mere accident that I stumbled upon his philosophical past. Years ago, when, as an undergraduate at Oxford, I was wrestling with the profundities of T. H. Green, and the dialectics of F. H. Bradley, and watching white-bearded, kindly-eyed Edward Caird smooth out the crinkles and creases of Kant's philosophy, I discovered in the back numbers of *Mind* some essays by John Dewey, entitled *The Psychological Standpoint, Psychology as Philosophical Method, Knowledge as Idealization.* At the time of this discovery, though I knew it not, Mr. Dewey was already a rising star on the pragmatist horizon, destined presently to enter into a major constellation with James and Schiller. But to me in these essays he appeared as the heaven-sent champion of absolute idealism. His way of putting them seemed to illuminate for me the many dark sayings of my idealist teachers. "All that is, is for consciousness or knowledge"—why, how obvious it seemed! I thrilled to his declaration that "Psychology as the science of this consciousness is the explicit and accurate determination of reality in its wholeness . . . it is the ultimate science of reality." Indeed, I found, it is "the science of the absolute itself." It all seemed so clear and helpful, and, fascinated, I read on: "Ultimately the growth of experience must consist in the development out of itself by intelligence of its own implicit ideal content upon occasion of the solicitation of sensation. But this is a thought to be elaborated another time." Thereupon I began a research magnificent for the fulfillment of this promise, and what I found was—'instrumentalism.'

Now the point of this resurrection of Mr. Dewey's dead self is not to score a cheap debating point or make play with a petty charge of inconsistency. Rather I am reminded of James's remark in *A Pluralistic Universe* (p. 20), that systems of philosophy are "just so many visions, modes of feeling the whole push, and seeing the whole drift of life, forced on one by one's total character and experience,

and on the whole *preferred*—there is no other truthful word—as one's best working attitude." It is a commonplace among philosophers that if we could once enter into another's angle of philosophic vision, if we could once feel the whole push of the universe as he feels it, the details of his philosophy would come as a matter of course. Our criticisms would seem pointless. Our objections would fall to the ground. The best way of entering into Mr. Dewey's experimental logic is to study the forces which have remolded his vision from the idealism of his earlier to the instrumentalism of his later days. At any rate, that is the best way for one who, like myself, after a period of acute critical reaction, has returned, mainly under the influence of the writings of Bosanquet, to what is still commonly called 'idealism.'[1]

Piecing together, then, passages from several of Mr. Dewey's writings, I picture to myself the course of his philosophical development as follows. Idealism brought to him, as it has done to many others who are led into philosophy by religious doubts, the first taste of intellectual emancipation. It mediated for him, as it did for Royce, the transition from the supernatural theology of religion which no longer satisfied his thought, to an unprejudiced inquiry into the actual structure of our universe as revealed in all forms of our experience. But Mr. Dewey travelled further along this path than Royce; too far perhaps. Idealism, he came to hold, is still tainted with supernatural, or at least non-empirical, elements. Its concept of the absolute, eternal and perfect, makes unintelligible the empirical character of our lives, cast in the form of time, shot through with evil, struggling painfully to progress to better things. As for James, so for him, the problems of time, evil, and creative activity stood in the way of any acceptance of the absolute. This line of thought was reinforced by the influence of modern science, especially biology with its concept of evolution. It made Mr. Dewey a 'behaviorist' before that term had been invented. It led him to regard thinking as a mode of response to the environment ("knowing is, biologically, a differentiation of organic behavior," p. 276); as reflex action become fore-seeing, creative, constructive; as involving always physical action and thereby a physical transformation of the environment; a remolding of the world nearer to the heart's desire, and that, not in imagination or by a trick of theory, but in actual fact and in practical living. At this point entered the third main determinant, as it seems to me, of Mr. Dewey's philo-

[1] *Cf.* Bosanquet's proposal to drop the ambiguous term 'idealism' in favour of 'speculative philosophy,' in the Philosophical Review, Vol. XXVI, No. 1, p. 6.

sophical vision, viz., the zeal of the moral, social, educational reformer. In this zeal he lifts the scope of thought and action from the biological level of survival to the ethical level of "control of the environment in behalf of human progress and well-being" (p. 22). Knowledge now for him is "something going on in the world, in the observatory and the laboratory, and in the application of laboratory results to the control of human health, well-being, and progress" (p. 66). The evolutionary point of view, so he claims, transforms "the logic of knowledge" and demands an intellectual face-about. He hails it as the charter of the experimental methods of science, by the lack of which he accounts for the present stagnation and the practical barrenness of the social and political sciences. It is the same in education. The desideratum is an experimental technique by which to get results that will guide us to intelligent reforms. So, again, if we are not to grope about blindly in the reconstruction of our world after this war, we need a method of testing and determining what plans of reform are wholesome and beneficial and what are not. This, at least, I understood to be the burden of Mr. Dewey's address before the Psychological Association at New York last December. In this spirit he calls for "a logic of ethical inquiry," meaning not a study of how we do inquire in ethical matters, but rather a technique yet to be developed for conducting ethical inquiries more effectively, *i. e.*, experimentally. The concept of experiment clearly bridges for Mr. Dewey the gap between a methodology of inquiry and a methodology of reform. The chief enemy which blocks the path is absolute idealism which he accuses of denying the efficacy of thinking for the betterment of the world, and thereby of robbing the intellect of its specific work and responsibility. It divorces the ideal from the actual, leaving ideals impotent for control and change of the actual. It makes of the philosopher an 'aloof knower,' whose profession is an 'otiose contemplative survey' of the universe. It makes of him a 'parasite' without sense of social calling and responsibility; a mere theorist, not a leader in wise reform and constructive action.[1]

[1] Of course this whole point of view is by no means unique or novel in the history of philosophy, though this remark must not be understood as belittling the genuine freshness and originality with which Mr. Dewey presents it. An instructive parallel, exhibiting the same hostility to supernaturalism and the same confidence in man's power of reforming the world by means of science is to be found in a passage in Huxley's autobiography (*Collected Essays*, Vol. I, p. 16): "To promote the increase of natural knowledge and to forward the application of scientific methods of investigation to all the problems of life to the best of my ability, in the conviction which has grown with my growth, and strengthened with my strength, that there is no alleviation for the sufferings of mankind except

Though in developing these ideas Mr. Dewey touches on a great many issues, large and small, of contemporary philosophical discussion, there stands in the centre of interest for him a single problem, viz., to determine the place and function of thinking in the world. This is the problem on which his philosophical vision is focused. Biology yields him the basis of fact for his theory: thinking is an instrument in the service of life. Ethical interests supply the ideal: to use thinking as an instrument for the betterment of life, for the reform of education, of political institutions, of social relations. The enemy to be fought is the theory, in whatever shape or form it may disguise itself, which denies to thinking this instrumental function, thereby divorcing it from action and condemning it to an idle contemplation of an eternally perfect, static, changeless universe.

What then is the task of logic in the context of such a view? If we are to judge from the *Essays*, the task of an experimental logic is simply to set forth and defend at length and in detail precisely the experimental character of thinking, by pointing out the conditions under which thought-experiments become necessary, the antecedents which evoke thinking, the data which it uses as materials, the aim it seeks to realize, and the relativity of 'knowledge-objects' to the processes by which they get elaborated. The main point is "the proper placing of thinking in its temporal context." This means that experience (*cf.* "our universe of life and love," p. 75) is in the main non-cognitive—an affair of non-reflective action and enjoyment. Cognition (*alias* reflection, intellect, thought), with its trick of analyzing and objectifying, arises only when incompatible factors, calling for incompatible responses, occur in the empirical situation. Its function is to locate and identify the difficulty, and devise means for coping with it. Its general method of procedure is inferential: "mind is but another word for the fact of inference" (p. 421). The most characteristic account of inference from Mr. Dewey's point of view is found in such descriptions as "an attitude of response to an absent thing as if it were present" (p. 423), or "behaving to the given situation as involving something not given" (p. 425). These give Mr. Dewey an opportunity for many excellent observations on signs and meanings. But the central thesis is always this, that every datum is really a basis of action, that the present is always incomplete and requiring to be completed, that every proposition states really a pro-

veracity of thought and action, and the resolute facing of the world as it is, when the garment of make-believe by which pious hands have hidden its uglier features is stripped off." The historical affinity of this marriage of naturalism with philanthropy is clearly with Comte and Mill and 'the religion of humanity.'

gramme of action. Thinking, to put it in my own words, asks not, What is this? but, What is to be done with this? Or, This being what it is, what is to be expected from it? What possibilities are there for the future? By what means can such and such ends be realized in this given situation? We are always interested in the analysis of the given with a view to the possibilities it offers for future action. Mr. Dewey suggests that all scientific or descriptive statements of matters of fact imply indirectly, if not directly, something to be done (*cf.* p. 347). In the same spirit he writes, "The passage of a proposition into action is not a miracle, but the realization of its own character—its own meaning as logical" (p. 389). Further, without action no verification, no learning, no testing, no responsibility in thinking. The risks of action compel us to elaborate a nice technique in determining our data precisely, so that we may read off their clues with as few mistakes as possible. If all goes well, the conflict with which thought began dissolves in harmonious action. Reflection dips back into the main stream of non-cognitive experience, running smoothly along without hitch or trouble. The following passage is a fair sample of how Mr. Dewey conceives the procedure of thinking: "Thinking, or knowledge-getting, is far from being the armchair thing it is often supposed to be. The reason it is not an armchair thing is that it is not an event going on exclusively within the cortex or the cortex and vocal organs. It involves the explorations by which relevant data are procured and the physical analyses by which they are refined and made precise; it comprises the readings by which information is got hold of, the words which are experimented with, and the calculations by which the significance of entertained conceptions or hypotheses is elaborated. Hands and feet, apparatus and appliances of all kinds are as much a part of it as changes in the brain" (p. 14).

It is clear from such a passage as this that hardly any of the topics ordinarily discussed in treatises on logic (of whatever school) would come up for consideration in experimental logic. Even allowing for the fact that Mr. Dewey does not pretend to have written a system of logic, but has only sketched a new point of view for approaching logical problems, my difficulty is to imagine what the positive content and doctrine of an experimental logic would be, or what particular logical issue it would enable us to settle. Nor has this difficulty been removed by a study of Mr. A. W. Moore's essay on logic in *Creative Intelligence*. Mr. Dewey speaks of knowing as something at which some men work as others work at farming or engineering. He

speaks of science as a highly specialized industry. But I can discover no attempt to formulate the rules by which we practice this art or business, or to study the activity in the light of its products. Indeed, Mr. Dewey would apparently forbid us to consider the products in order to study the activity. He complains, in language reminiscent of Bergson, that traditional logic analyzes the syllogism retrospectively, as a *fait accompli*, not the activity of syllogizing. He accuses modern realist logicians of studying results achieved, not the process of achieving; knowledge-objects not knowledge-getting. Though he has much to say on the 'making' of inferences, he ignores entirely what we can learn, from the study of inferences *made*, about the nexus of implications which guides and controls valid inference. Though he insists on thinking, or knowing, being identical with judgment, there is no attempt to study judgment forms, nor, so far as I can see, any suggestion of a principle which would make it possible to give a systematic account of such forms, of the import of each and its place in the system of knowledge. It is hard to see what light, if any, would be thrown on such questions as the relation of hypothetical to categorical propositions, the mutual exclusiveness of alternatives in disjunctions, the differences of modality, of abstract and concrete universals, of material and formal implications. The very analysis of propositions is left untouched, beyond a brief suggestion which I paraphrase to myself as meaning that the subject is what we experiment on, the predicate what we experiment with, and the copula the linguistic symbol for the act of experimenting. I have in mind here the passage in which Mr. Dewey says also that fact or datum and meaning or idea, percept and concept, particular and universal are to be interpreted in terms of the difference between "what is there (whether as obstacle or as resource) and suggested inventions—projections of something else to be brought to bear upon it, ways of dealing with it" (p. 24). However interesting and suggestive such a remark may be, it hardly helps one to see what modifications it would involve in any standard treatise on logic (say that of Keynes, or of Joseph, or of Bosanquet, let alone our mathematical logicians), if it were to be rewritten from Mr. Dewey's point of view. I could imagine it possible, for example, to recast Bosanquet's logic in Mr. Dewey's language of experiment. Each form of judgment would then be a standardized type of intellectual experiment found successful in a certain context and up to a certain point. But would the order of the forms, and the general account of the import of each be appreciably altered?

The fact is that Mr. Dewey's whole outlook upon logic is distorted

by his antagonism to what he calls 'epistemological' logic. The vice of this logic which he is never tired of denouncing, *e. g.*, in Kant or Lotze, is a sharp separation between data and intellect, reality as such and thought as such. When sense-data are opposed to categories by which they are supposed to be synthesized, without any explanation of what determines the relevance of a category to the data in a concrete case; when reality and thought are divided from one another by an unbridgeable gulf, so that we get an unknowable real on the one side and mere subjective ideas on the other, then it is easy to agree with Mr. Dewey's protests against the artificiality and futility of such points of view. Then his reminder that thinking is performed only at specific need, like taking a walk or eating a dinner; that it always arises in specific situations in order to solve specific difficulties, comes as a wholesome and timely challenge to all 'epistemological dualists.' His call to study 'thinking behavior' as a historic and natural event in a historic and natural setting dispels a good many of these clouds of philosophical dust. But once more I repeat, it does not touch the traditional body of logical doctrine in the strict sense of the word at all. It does not touch mathematical logic, because that does not offer any theory of thinking in Mr. Dewey's sense, as little as does any other science. It is true that some students of this logic in their character as neo-realists have also talked about sense-data and knowing, and Mr. Dewey's criticisms of their strictly epistemological theories seem to me to have a great deal of pertinence and force (*cf. e. g.*, essay xi on Bertrand Russell's views). But this has nothing to do with the subject matter of their logic. Again Mr. Dewey's polemic does not touch such a logical theory as Bosanquet's, which, as Bosanquet himself has recently pointed out (*Logic*, 2d ed., Vol. II, p. 263), is not open to the charge of dualism brought against it in *Studies in Logical Theory*. In short, the blunder which Mr. Dewey is attacking, though it is to be found in the works of a good many writers on theory of knowledge, can not, I think, be laid at the door of a single great modern logician, with the exception of Lotze. Yet in criticizing Lotze, Mr. Dewey writes as if he were demolishing 'idealistic' logic in general.

I have found only one passage where Mr. Dewey expresses himself at length on the problem of logic. He distinguishes a specific and a general problem. The former is, "How does the particular functional situation termed the reflective behave?" His answer to this I have just passed in review, and my main criticism on it has been that, as handled by Mr. Dewey, it really has nothing to do with the topics

which constitute the logician's proper field. The general problem is formulated as follows: "How does one type of functional situation and attitude in experience pass out of and into another; for example, the technological or utilitarian into the aesthetic, the aesthetic into the religious, the religious into the scientific and this into the socio-ethical and so on?" This inquiry Mr. Dewey calls the "logic of experience" and identifies with philosophy (pp. 97, 8). From it he expects the solution of such questions as "the value of research for social progress, the bearing of psychology upon educational procedure; the mutual relations of fine and industrial art; the question of the extent and nature of specialization in science in comparison with the claims of applied science; the adjustment of religious aspirations to scientific statements; the justification of a refined culture for a few in face of economic insufficiency for the mass; the relation of organization to individuality" (p. 99). It is a great pity that Mr. Dewey has not given us a glimpse of the solutions which the logic of experience supplies for him to these problems. It would have been an invaluable help in appreciating the nature and efficacy of experimental thinking as practiced by a master of the craft. Howsoever that may be, Mr. Dewey has here laid his finger on some phases of our civilisation which stand badly in need of the most enlightened thinking we can devote to them. His exhortation to us philosophers to take the lead in this thinking and to test our theories on these matters by the richer experience which action brings is excellent advice, and not nearly enough heeded by most of us. But in all that is sound in Mr. Dewey's advice, he is surely but calling us back to the tradition of the great philosophers. Not one of them, even if we go back no farther than Descartes, but has offered us, in the very spirit of a logic of experience, his answer to one or more of Mr. Dewey's problems (*e. g.*, the adjustment of religion to science)—an answer not merely of the armchair and the study, but of its author's life and practice. As for the barrenness of idealism, it would be hard to overrate the weight which, *e. g.*, T. H. Green's example and teaching lent to the various movements for social reform in the England of the 70's and 80's of the last century. Mr. Dewey has needlessly cast himself in the rôle of the lonely voice crying in the wilderness.

I have already explained why I do not think Mr. Dewey's instrumentalism has much to do with logic. It remains to set down in conclusion the grounds of my profound difference from Mr. Dewey in respect of his central thesis that all propositions assert *agenda*, and that when thinking is not instrumental, it is parasitic and worse

than useless. The fundamental fault, as I see it, lies in Mr. Dewey's surrender to the biological point of view which not only fits awkwardly with his own programme of a logic of experience, but which pulls out of focus his whole view of the nature and function of thinking as revealed in its highest manifestations. Though we may still talk about 'response to environment' and 'organic behavior,' yet it is clear, at least to me, that in the study of the 'right relationships' of various attitudes of experience such as religion, morality, art, science, philosophy, we have left biological categories far behind. If we commit ourselves to biology at the start, we prejudge the issue. We make it impossible for ourselves to do justice to what these very experiences reveal concerning the nature of the environment, or, as I should prefer to say, the world or the universe. We exclude arbitrarily the possibility that it may possess the character which is predicated of it under the name of the absolute. We close the door upon modes of experience, such as the mystical, without which no logic of experience can be complete, let alone any account of the 'well-being' of man. I know it is no use arguing about this matter with Mr. Dewey. He knows what can be said on it as well as I; indeed better. It is just a profound difference in the way in which each of us "feels the whole push" of the universe. But this difference engenders all sorts of further differences. I should agree that thinking probably began under the stimulus of baffled action in the struggle for existence. But I should add, with a realist like Russell, and an idealist like Bosanquet, that it comes to its own only when it is exercised for the satisfaction of the disinterested curiosity of science and philosophy. I should agree that thinking is always practical, in the sense of being an activity which involves the thinker's body and may involve experimental manipulation of other bodies. But I should add that all this doing may be instrumental to understanding, that we may act simply in order to know or think truly, and that this sort of thinking may be an end in itself. I do not say it is the only end in itself. On the contrary, other modes of experience, *e. g.*, art, or social intercourse, are also worth while for their own sakes, and may be non-cognitive as Mr. Dewey describes them. That thinking is genuinely instrumental to them I should not deny. But I should insist that it is not always a means to ends such as these or as statesmanship, education, or social reform, but that in pure science and philosophy it rises to the level of a coördinate end, and that other modes of experience are then instrumental to it, furnishing it with materials for its effort to contemplate the nature of things as they are. Yes, contemplate; and

I am not to be bullied out of this fair word by abusive adjectives like "otiose." Of course, by thinking the world is changed and transformed in the sense that it appears very different at the end from what it appeared at the beginning of systematic inquiry. But we also think that the outcome is a fuller revelation of the nature of the world, and this I hold to be decisive. Hence, thinking for me is not exclusively concerned with *agenda*, unless it be in the wide, and therefore harmless, sense in which the phrase includes the things we have to do in order to know more and know better. In short, I plead for the recognition of the fact that the pursuit and the attainment of knowledge is a form of experience, or life, which is worth while for its own sake, which is essential to any complete ideal of well-being, and which cannot be adequately dealt with from the biological angle of adaptation to environment, or even from the ethical angle of reform. What I have been urging is as old as the hills, but it is none the less true for all that, and Mr. Dewey's experiment of ignoring it is none the less disastrous. Granted that most of our thinking is done in order to live and to live better, yet one of the ways of living best consists precisely in emancipation from the service of life, and in living for the sake of 'theoria.' To me this is the lesson of the logic of my own experience, confirmed by the continuous testimony down the ages of thinkers far greater than I. Not even Mr. Dewey's latest siren song in *Creative Intelligence* has lured me over to his point of view. On the contrary, it has made me ponder more than ever the paradox, that pragmatists, though they talk most about the efficacy of thinking, have made the smallest positive contributions either to logic or to any other recognized branch of philosophy.

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The Psychology of the Great War. By GUSTAVE LE BON. Translated by E. ANDREWS. New York, The Macmillan Company, 1916.—pp. 480.

This is an interesting and able book, which, however, is likely to make a rather vague impression upon the average reader on account of the large number and variety of the topics considered and the necessity of correspondingly brief treatment. Like most of the author's books best known to English readers, it is written in a clear and popular style and with a minimum of exact references that might prove irritating to the serious student. The underlying idea is substantially the same as that set forth in the author's *Psychology of the Crowd*, published more than twenty years ago, and further expounded and

illustrated in works like *The Psychology of Socialism* and *The Psychology of Revolution*.

Book I deals with "Psychological Principles Necessary for the Interpretation of the Present Work." This consists of only two chapters of moderate length and is hardly an adequate introduction to what follows. Even *The Psychology of the Crowd* often seems as dogmatic as it is undeniably interesting and suggestive, but M. Le Bon's aphoristic remarks in Book I might suggest a more slender psychological foundation than that which can fairly be conceded to the present work. A few passages, however, will have to serve for any who may not care to glance over the earlier book, either for information or for refreshment of memory. "The mentality of men in crowds is absolutely unlike that which they possess when isolated, for an assemblage of men is as different from the individuals of whom it is made up as is any living being from its component cells. . . . Intellectually collective man always appears inferior to individual man, but may be superior to him in the domain of the feelings; for although certain feelings, like gratitude, for instance, are unknown to the crowd, it possesses others, such as altruism, devotion to the general welfare, and even heroism, which are far more difficult to put in practice. The powers of the average man are increased by joining a collectivity, while those of the superior man are curtailed" (p. 31). This last is rather misleading, for the 'powers' of the average man, if intellect be in question, are likely to be well ahead of those of a crowd, according to M. Le Bon, while the superior man, who is by no means exempt from the influences of crowd psychology, needs the feeling of solidarity as much as others, when, for example, patriotic self-sacrifice is demanded. But, to proceed: "The crowd is likewise very receptive of illusions, which acquire the force of truths from the mere fact of becoming collective. The present war furnishes numerous examples of this law" (p. 32). "Large assemblies have the principal characteristics of crowds, such as a mediocre intellectual average, excessive irritability, sudden transports of fury, intolerance, and blind obedience to their leaders, and yet it is to assemblies of just this sort that the great civilized nations have finally entrusted their destinies" (p. 34). "In ordinary times the intellectual forces of a country's best elements easily [*sic*] predominate over its collective forces, but in great crises, such as wars, revolutions, and the like, this is not the case . . ." (pp. 34, 35). It must not be inferred from the last quotation that M. Le Bon is in the least a pacifist; he is referring to the vast irrational forces which, for better or for worse, are at the command

of those who really prove themselves the leaders in the great crises of history.

The word 'mysticism' appears frequently in the present work as well as in several earlier ones by the same author, though, as before, M. Le Bon's treatment remains somewhat vague to the end. "The term 'mysticism,'" he says, "has quite different meanings in philosophy and in religion. It is one of the many words whose content varies at different periods of time and according to the individuals who employ it. Generally speaking, one may say that mysticism is characterized by a taste for mystery, love of the supernatural, contempt of experience, and a belief that superior powers intervene in mundane phenomena" (pp. 36, 37).

After his rather inadequate statement of his own fundamental psychological principles, M. Le Bon proceeds to applications. But Book II can hardly be called an application at all. The subject is "Germany's Evolution in Modern Times," which the author treats in interesting journalistic fashion, without any attempt to make capital of his peculiar psychological principles, except rather incidentally at the last. The same must be said of Book III, "The Remote Causes of the War." This consists of four chapters. Of these the first three hardly involve any particular psychological theories, but simply represent M. Le Bon's generally sensible though decidedly sketchy individual interpretation of the events in question. The last chapter, on "The Part Played by Mystic Influences in the Genesis of the War," is perhaps less an exception than might appear. It did not require any particular psychological apparatus to argue convincingly, as the author does, that megalomania is evident in some of the more extreme statements of Teutonic principles and policy.

Book IV, "The Immediate Causes of the War," deals at some length with the very numerous considerations suggested by the title. First, the Austrian ultimatum and the week of the diplomatic conversations is dealt with in rather summary fashion; then the development of feeling in the various countries concerned is considered more at length. The author's discussion of these highly complicated matters is most commendably free from the more obvious kind of national bias, but it can hardly be called 'scientific' in the ordinary meaning of the word. Indeed, the reader is bound to feel in the end that a psychologist, with definite theories to defend and illustrate, is rather at a disadvantage than otherwise in discussing political and social phenomena of such unusual complication. It is perhaps worth noticing that M. Le Bon holds that nobody wanted war and that every-

body feared it (p. 179), and, more especially, that the German Emperor did not want war at the particular time when he felt obliged to take measures that inevitably brought it on (p. 260 ff.). In such cases, it is difficult to see why the guess of a psychologist should be more reliable than that of any other equally intelligent person. Certainly the reasons given seem slight with a view to the dogmatic conclusions.

With Books V and VI the term 'psychological' again comes to feature in the titles: Book V is on "Psychological Forces Involved in Battles," while Book VI is on "Psychological Elements in German Methods of Warfare." But M. Le Bon's mode of treatment remains essentially the same. With the exception of Chapter iii, on "Military Courage: Its Genesis and Its Forms,"—a rather slight treatment of an important subject, where one would really be interested in a more technical discussion from the psychological standpoint,—most of the matters considered in Book V could almost better have been treated without reference to psychology as a special science. For example, in Chapter iv the author is mainly concerned with "psychological errors and lack of foresight" in France, in Germany, and in Russia, severally discussed. There can be no question that most of the 'blunders' pointed out were such in fact,—though it is of course easier to point out 'blunders' after the event than before,—but why call them 'psychological'? It is all simply the old story of statesmen and others making more or less gross miscalculations when dealing with unusually complicated conditions or with the ingrained characteristics of different nationalities.

Book VI, on "Psychological Elements in German Methods of Warfare," is very brief and for that reason a little disappointing; but M. Le Bon discusses this very disagreeable subject in a spirit of independent reasonableness and pitiless objectivity that is characteristically French, and that can only remind one by contrast of the preposterous joint manifesto of a large number of the best known German professors issued not long after the beginning of this war. Presumably M. Le Bon holds the view that, if comment be necessary, it may safely be left to posterity,—especially as the histories of the future in general currency will less often bear the stamp 'made in Germany.'

The final division of the volume, Book VII, deals with "Unknown Quantities in Warfare." After illustrating the unprecedented scale of the present world conflict and pointing out some of the probable consequences of this marshalling of the total forces of the nations at war, M. Le Bon discusses with great frankness the dubious value

of the official documents relating to battles, and then he proceeds, in Chapter iii, to consider with even greater frankness "Hypotheses concerning the Battle of the Marne." No regard is paid to popular military reputations. The author concludes: "The future alone will, perhaps, explain how the French victory came about; but even now we may assert that it was not only a collective achievement, due to the valor of our soldiers, but a combination of lucky accidents as well" (p. 445).

The brief Conclusion to the volume is sombre, but not pessimistic in the emotional sense. "When the war is over France will probably be almost drained of men and money; but her illusions and the errors which would have ended in her decline will be gone too. . . . One of the most difficult undertakings will be to free ourselves from the baleful power of words; for by means of a few popular formulas on progress, pacifism, socialism, and universal brotherhood, the puissant eloquence of our orators has disguised realities whose weight has almost submerged us. We must also acquire sentiments of duty and responsibility, which we have lacked somewhat, and the spirit of solidarity, which we have lacked still more" (pp. 466, 467). 'The battle is to the strong,' but is mere strength to become the only thing? "Is brutal force destined to become the only ruler of the nations, as it was at the beginning of the world? Must mankind submit to a pitiless barbarism, which condemns the weak to hopeless slavery? No one can tell" (pp. 469, 470). But the well-known expounder of the 'illusions' by which nations live as well as die finally ceases to be the mere expounder. He concludes: "Neither Nature, nor man, nor fate itself, can withstand a strong and steadfast will."

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Faith Justified by Progress. By HENRY WILKES WRIGHT. New York, Charles Scribner's Sons, 1916.—pp. xiv, 287.

Professor Wright's Bross Lectures (delivered at Lake Forest College in 1916) are a trifle monotonous in style—mainly, perhaps, because the straight course of positive statement is so seldom varied by discussion or argument—but the presentation of the thesis is effective from the standpoint of orderly development and leaves one with the impression of certainty and unity of aim.

Professor Wright's purpose is to offer a purely humanistic interpretation of Christianity; or, in the broader sense of pragmatism, a pragmatic Christianity. The philosophical background is set before us in the Introduction. "Faith we shall here understand as belief

that the ideals of personal life can be realized, a belief which is affirmed and acted upon in advance of proof from actual experience." The mediaeval cosmology, based upon the book of Genesis and the Aristotelian physics, wholly geocentric and anthropocentric in point of view, offered a conception of the world which guaranteed the efficacy of faith. Modern naturalism, from its beginning in the heliocentric astronomy of Copernicus, down through Darwinism, has, by bringing ever more of the world under the mechanical theory, made the world ever more irrelevant to human purposes and has threatened even the autonomy of faith within itself. But in the new humanism, in the movement begun in the Kantian theory which makes the mechanical world the product of an intellectual synthesis, and carried out in the pragmatic theory which makes it the product of a synthesis of will and purpose, faith has come again to her own.

The body of the book then consists of a genetic account of human activity, based on the theory that will, not knowledge, is the true source of human progress; from "The Primitive Life," which, determined by immediate desire, invokes the aid of protecting divinities; through "The Natural Life," in which regard for the future leads to the observation of cause and effect; through "The Supernatural Life," in which desire, thwarted by the limitations of the natural world, creates a supernatural, spiritual world and the conception of an all-comprehensive object, or God, the completed fulfilment of the human will; to "The Universal Life," in which, it seems, the motives which sought satisfaction in the supernatural now look for satisfaction in a perfected humanity in this world, perfection being measured by the growth of science and culture and by the regard paid to personality. Two points are emphasized in this account: that human life, so far as it is a life of culture, is already a spiritual life; and that faith is everywhere both the motive of our activity and the creator of our world. The law of cause and effect, for example, is an expression of faith—not of knowledge.

The purpose of Mr. Wright's argument is thus to offer an interpretation of Christianity which shall have all the appeal of traditional Christianity without the intellectual inconvenience of assuming an 'other,' or supernatural, world. And thus his conception of religion does not differ in principle from other conceptions which make religion a psychological or sociological phenomenon, the chief distinction being the part played by his pragmatic conception of faith; and to me it is not more satisfactory or convincing. The argument from faith I may pass over with the suggestion that, apart from knowledge, it is

not clear how the fact that faith has been successful in the past will guarantee the validity of faith for the future or show what kind of a faith we may reasonably cherish. (Mr. Wright fails to note the absence of votive offerings from the faiths which may have perished.) To me the more interesting question is whether the religion offered us is worthy of the name, and especially whether it deserves the name of Christianity.

Mr. Wright makes it clear enough that the motive by which religion is to be justified is the salvation of the individual soul. Faith, he tells us (p. 245), is "belief in the essential permanence, the fundamental reality, of personality." This sounds fair enough until, in the next sentence, we read that "the personality which is here believed in is personality in its universal aspect"; which means that we are to be satisfied with the prospect that respect for personality will be the dominating motive in the society of the future. To me this does not sound inspiring; not more inspiring, I should feel, than to a starving Pole or Belgian the anticipation of plenty for the next generation. The desire for eternal life, so far as I am able to read it, is a desire to experience life. It is not a desire that life shall merely *be*, in a realm of experience experientially incommunicable to my own. If this abstract result be the sole fulfilment of personality, then, for my part, I prefer to say that when I am dead that is the last of *me*. It is doubtless simplifying to bring the motives of religion into harmony with 'the facts of life.' I am inclined to think, however, that what religion is chiefly called upon to face is the fact of death; and that for any view of life which can regard death as unimportant, and its griefs and losses as fictitious and unreal, religion is superfluous and the language of religion meaningless. From this point of view it would seem that the sole function of a religious vocabulary must be to clothe life with hopes and fears derived from a false view of the world for the encouragement of those who are indisposed to accept life as it is.

This is, to my view, the effect of Mr. Wright's argument and of the many forms of 'humanistic' religion, anthropological, psychological, sociological, of which his is a type. Mr. Wright spends many pages describing modern progress in terms of Christian piety, dwelling with especial tenderness upon the fitness of a suffering and benevolent God for a world of struggle. So far as I can read, 'God' is here nothing more than a personification of modern progress. So far from demonstrating that God is "infinite, eternal, and unchangeable in His being," not to speak of demonstrating "the divine origin and

authority of the Christian Scriptures" (according to the purpose of the founder of the lectureship, as announced on p. vi), what Mr. Wright does demonstrate, I should say, is that God, having, as it seems, no greater capacities than mere man, is so clearly finite as to be no longer useful.

WARNER FITE.

PRINCETON UNIVERSITY.

The Human Worth of Rigorous Thinking. By CASSIUS J. KEYSER. New York, Columbia University Press, 1916.—pp. 314.

The fifteen essays and addresses which make up this volume, nearly all upon the subject of mathematics, are rather resplendent in rhetoric, but they are interesting, and something more. To an outsider they offer altogether, especially in the chapters, about half of the whole number, which are mathematical in content rather than about mathematics, a convenient and intelligible introduction to the special developments, and also to the general point of view, of modern mathematics. Chapter V offers a very intelligible explanation of the meaning of four-dimensional space, while chapter XIII discusses the 'existence' of hyperspace. Chapter VII explains the modern 'solution' of the problem of infinity. Chapter XII, are view of Whitehead and Russell's *Principia Mathematica*, makes it clear how modern mathematics comes to call itself logic. The last chapter, on "Mathematics"—an address given in no less than twenty places, which I suppose also to be the mathematical lecture in the Columbia series of lectures on special departments of study—is an interesting and suggestive, if question-compelling, statement of the nature of mathematical thinking. The first three chapters, from the first of which the volume takes its title, are so alike in what they have to say, each of them standing for the traditionally Platonic conception of the significance of mathematical thought, that, it would seem, two of them might profitably have been omitted.

Among the many questions suggested by the volume perhaps the most interesting is the question raised by a comparison of the first chapter with the last. The burden of the first chapter is that mathematics is the only rigorous thinking, which, again, as the author explains rather frequently throughout the book, is the only real thinking. In the last chapter he repels, with some scorn, the suggestion of Oliver Wendell Holmes, among others, that, since mathematical operations may conceivably be performed by a calculating machine, mathematical thinking is not thinking at all. Such a suggestion, he tells us, is the outcome of the vulgar notion that mathematics is con-

cerned only with reckoning; or of the notion, almost equally vulgar, that "the mathematician's mind is but a syllogistic mill and that his life resolves itself into a weary repetition of A is B, B is C, therefore A is C; and Q.E.D." (pp. 298–9).

Now, I wish to urge gently that, in so far as the mathematician's mind is *not* a 'syllogistic mill' he is not 'rigorously' thinking. Mr. Keyser explains, quite truly, I think, (pp. 294–5) that the mathematician is, in his own domain, "matching, point for point, the processes, methods, and experience familiar to the devotee of natural science"; "making guesses regarding the order and internal harmony of the data observed and collocated; testing the hypotheses, not merely by the complete induction peculiar to mathematics, but, like his colleagues of the outer world, resorting also to experimental tests and incomplete induction; frequently finding it necessary, in view of unforeseen disclosures, to abandon a once hopeful hypothesis or to transform it by retrenchment or enlargement." Furthermore (p. 301), "the master mathematician is constantly required to exercise judgment—judgment, that is, in matters not admitting of certainty" —"a function analogous to that of the comparative anatomist like Cuvier." I shall pass over the larger question, whether 'rigorous thinking' is not a contradiction in terms—whether, namely, a rigorous nexus of things and a reflective consideration of things do not stand for tendencies in contrary direction; and I will simply ask how one who is engaged in "making guesses," in resorting to "incomplete induction," in correcting "once hopeful" hypotheses, and, finally, in exercising "judgment," "in matters not admitting of certainty," can claim any especial distinction for his thinking on the score of rigor. Mr. Keyser, I fear, has given the whole case away. It seems that the mathematician's mind, so far as it is a genuine human mind and not a 'syllogistic mill,' is just like any other human mind.

WARNER FITE.

PRINCETON UNIVERSITY.

NOTICES OF NEW BOOKS.

The Religious Thought of the Greeks from Homer to the Triumph of Christianity. By CLIFFORD HERSCHEL MOORE. Cambridge, Harvard University Press, 1916.—pp. vii, 385.

The religion of Greece and Rome, one of the most fruitful domains of the new scholarship, has become almost a standard topic of academic lectureships. Only a small proportion of such courses of lectures have been or will be published. Professor Moore's deserved to be among the exceptions. They differ from their chief predecessors, Adams' *Religious Teachers of Greece* and Campbell's *Religion in Greek Literature*, in their wider scope. Adam closes with Aristotle, Campbell with Plato. Professor Moore's sixth lecture continues the story with a comprehensive survey of later philosophies from stoicism to neoplatonism. The seventh lecture, "The Victory of Greece over Rome," begins with the accepted outline of the history of Roman religion and in conclusion returns to stoicism in its more humanly appealing later avatars Seneca, Epictetus, and Marcus Aurelius. An eighth chapter on "Oriental Religions in the Western Half of the Empire," presents a lucid resumé of the recent work of Cumont and others in this field. A thoughtful chapter (IX) on "Christianity" exhibits the stages of the gradual Hellenization of the simple personal ethical religion of Jesus. A final chapter (X) on "Christianity and Paganism" deals mainly with the analogies and the distinctions between Paganism and the thought of the Christian apologists and catechetical teachers. It does not attempt either to portray the picturesque medley of the religious life of the Roman Empire or to bring out the passion and pathos of the final conflict.

The quiet good sense and even excellence of Professor Moore's performance offer little provocation to criticism in either sense of the word. His text is clear, simple, and pleasantly readable throughout. But there are few if any brilliant passages or purple patches that tempt to quotation. There is no apparatus of scholarship beyond a few guiding references to the Greek authors in the text and a sufficient bibliography in the appendix. There is no controversy. Professor Moore merely dismisses as irrelevant to his purpose the speculations of prehistoric and anthropological philology. And in the beginning of the chapter on oriental religions, he briefly deprecates the exaggerations which he himself eschews. There are no absurdities and few if any errors that call for correction. In these respects the book is a curious contrast with Norden's *Agnostos Theos* which of course belongs to a different category of literature. Norden's book, far more erudite, and to scholarly students perhaps more stimulating and suggestive, swarms with hazardous inferences and presents scores of strained or erroneous interpretations. The world is the

richer for both types of book. But so long as the public receives with favor the doctrine that 'accuracy atrophies,' and that 'he who does not make mistakes makes nothing,' the present reviewer will regard it as the right and the duty of the sober critic to correct mistakes wherever he finds them, courteously but firmly. Otherwise careless or ambitious modern over-productivity will heap mountainous error too high for truth to overpeer.

Professor Moore's book as already said offers little occasion for the application of this principle. But I will in conclusion submit to him a few of my queries. He sensibly begins with Homer, with whom all things begin for us. I should stress a little more than he does the eternal truth and beauty and hence the modernity of Homer's essential religion. But that is a matter of perspective and personal emphasis. He is a little more certain than I am that "these poems were composed to be recited at the courts of princes in Ionia." But a perpetual *ignorabimus* would weary the reader. I doubt if Achilles' speech to the dead Hector (Il. 22. 365 ff.) aptly illustrates the avoidance of the kind of insolent defiance which drew upon Ajax the wrath of Poseidon. Achilles' psychology here is rather that of the passionate man who cannot be made to swerve from his course by the fear of consequences. Hector threatens him with the avenging wrath of the gods and prophesies his death at the hands of Phoebus. Achilles soliloquizes in effect 'Dead be you—I'll accept what's coming to me when it comes.' That is here the force of the formula, "But my doom I will accept when it pleases Zeus and the other immortal gods to send it." But this is a trifle and it may be a subtlety.

It is perhaps hypercritical to scrutinize too closely the uncertain interpretation of Hesiod. But I doubt if the text justifies "even" in "even the fool knoweth from experience." Jebb's "But their fields are glad with festal joys," is I think nearer the precise meaning of the Greek than is "But in good cheer do they perform their due tasks." And I do not think that the problem of the box of Pandora can be solved by giving to Elpis the meaning "anticipation of misfortune." The only solution is to admit that the passage is illogical —the second half naïvely inconsistent with the first. Lastly, Professor Moore finds in Hesiod's allegorical philosophy of history the notion of an evolution downward morally but forward intellectually. I could wish that he had given more specific evidence for this distinction which I am unable to discover.

Space fails for further niceties of this kind. The chapters on Plato and Aristotle, like nearly all treatments of the subject known to me, are rather general essays on their philosophy than studies of their religious feeling proper. I will touch on but one point. Professor Moore reaffirms the identification of the idea of good with God in Plato because he cannot interpret otherwise Philebus 22C, Tim. 28A—29E, 37A, 92C. But since every one of these passages has been quite definitely and specifically interpreted otherwise, the mere citation of them is not enough. If the discussion is to progress, the alternative interpretation must be considered and answered.

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Le mécanisme cérébral de la pensée. Par N. KOSTYLEFF. Paris, Félix Alcan, 1914.—pp. 313.

This book is written from the viewpoint of the Russian school of objective psychology. The author is particularly interested in applying his method to the study of the creative imagination, and what gives his book especial interest and value is the way in which he has succeeded in relating his own point of view to those of the Würzburg school and the Freudians, as well as the Russian school of Pawlow and Bechterew.

The Pawlow researches into the salivary reflex, valuable as they are as investigations, appear to the author to be conceived in too narrow a spirit to exercise a real influence upon the development of psychology. Bechterew has the advantage of coming to his task with an adequate psychological background, and it is as an indispensable complement to Bechterew's objective psychology that Kostyleff regards his own work. The investigations of the Würzburg school, especially of Watt, Messer, and Bühler, are examined with critical appreciation, for the author, whose method is not theirs, is anxious to follow them into their field by applying his own method to the higher mental processes. Freud and his adepts are given abundant attention throughout the book: to their treatment of the unconscious, the mechanism of dreams, and the mechanism of the imagination are devoted separate chapters embracing over a third of the book. While recognizing the importance, from his own 'objective' point of view, of Freud's emphasis upon the sensorial in dealing with dreams and other related phenomena, Kostyleff is not slow to point out the psychoanalyst's undue preoccupation with the sexual and his occasionally fantastic streak.

The author reports the results of his personal study of several contemporary French poets: Edmond Haracourt, Fernand Gregh, Count Robert de Montesquiou, Abel Bonnard, and Countess Mathieu de Noailles. He asks them about the history of their poetic imagination, their present manner of work, and what they understand by inspiration. The results are various. In addition to the remarks, sometimes enlightening, in which the poets describe their own activity, special interest attaches to the several examples of the genesis of their poems, illustrating as they do the mechanism of poetic construction. In the *American Journal of Psychology* for 1914 the present reviewer advocated, as an experimental method of dealing with the processes of poetic construction, the analysis of the original manuscripts of poems, revealing in the order of first drafts, erasures, corrections, and additions the characteristic stream of the poetic consciousness. He is confirmed in his belief in the value of this method by the analyzed first drafts which Kostyleff cites in his book and by the psychological interpretation, in a separate chapter, of Berret's literary study of the sources, documentation, and manner of composition of Victor Hugo's *Légende des siècles*. Kostyleff points to two sources of poetic inspiration: the sensibility of the poet and the preformed mechanism of verbal reactions. It is this latter capacity which characterizes the *vers souverains* of a true poet, produced by a faculty of storing verbal reactions and grouping them in an original way.

The latter part of the book is devoted to a study of the novelist's imagination. After an examination of the suggestive and the fantastic elements in the Freudian 'Oedipus complex,' the author applies himself to a more direct examination of the work of several contemporary French novelists: Mme. Marcelle Tinayre, J. H. Rosny, and Paul Adam. One may reflect upon the caliber of the writers selected for analysis, or upon Kostyleff's view of the greatest mystery of novelistic genius: his rare ability to identify himself with his characters to the extent of acquiring their manner of thought and speech. But Kostyleff's conclusion, which is also a criticism of the Freudians, is significant. It is not from dreams or from the subconscious that the novelist must expect the subject of his novel: life itself provides him with more direct and more various motives. The novelist's genius involves a brain richly endowed in sensorial and verbal reactions. In some cases this endowment is unlimited; moreover the central complex of reflexes can so alter itself in certain conditions as to create another individuality. Of the formation of this complex we know little. Perhaps it allows of experimental study, of inquiry into the organic factors acting on the mechanism of cerebral reflexes. These questions the author reserves for future work.

The reader will find in this volume many stimulating questions and some stimulating answers touching the problem of the psychology of imagination. These, together with the concise reviews it contains of the Russian, Würzburg, and Freudian work, should make Kostyleff's book valuable, whether one is or is not prepared to follow him the whole way in his 'objective' method.

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The following books also have been received:

Development of Personality. By BROTHER CHRYSOSTOM, F.S.C. Philadelphia, John Joseph McVey, 1916.—pp. xxv, 379.

The Validity of the Religious Experience. By GEORGE A. BARROW. Boston, Sherman, French, and Co., 1917.—pp. xi, 247.

Hindu Mind Training. By AN ANGLO-SAXON MOTHER. London, Longmans, Green and Co., 1917.—pp. xxiv, 536.

Causation and Belief. By CHARLES A. MERCIER. London, Longmans, Green and Co., 1916.—pp. viii, 228.

Mens Creatrix. By WILLIAM TEMPLE. London, Macmillan and Co., 1917.—pp. xiii, 367.

A Scale of Performance Tests. By RUDOLF PINTNER and DONALD G. PATERSON. New York, D. Appleton and Company, 1917.—pp. ix, 217.

An Introduction to Political Philosophy. By H. P. FARRELL. London, Longmans, Green and Co., 1917.—pp. vii, 220.

Ephod and Ark. Harvard Theological Studies, III. By WILLIAM R. ARNOLD. Cambridge, Harvard University Press, 1917.—pp. 170.

Etudes de Philosophie Morale. Par CHARLES WERNER. Genève, Librairie Kundig, 1917.—pp. 248.

Neo-Vedantic Sufeism. Book I. By ABDUL ALI. Calcutta, Mohes Press, 1917.—pp. iv, 89.

SUMMARIES OF ARTICLES.

[ABBREVIATIONS.—*Am. J. Ps.* = *The American Journal of Psychology*; *Ar. de Ps.* = *Archives de Psychologie*; *Ar. f. G. Ph.* = *Archiv für Geschichte der Philosophie*; *Ar. f. sys. Ph.* = *Archiv für systematische Philosophie*; *Br. J. Ps.* = *The British Journal of Psychology*; *Int. J. E.* = *International Journal of Ethics*; *J. of Ph., Psy., and Sci. Meth.* = *The Journal of Philosophy, Psychology, and Scientific Methods*; *J. de Psych.* = *Journal de Psychologie*; *Psych. Bul.* = *Psychological Bulletin*; *Psych. Rev.* = *Psychological Review*; *Rev. de Mét.* = *Revue de Métaphysique et de Morale*; *Rev. Néo-Sc.* = *Revue Néo-Scolastique*; *Rev. Ph.* = *Revue Philosophique*; *Rev. de Ph.* = *Revue de Philosophie*; *R. d. Fil.* = *Rivista di Filosofia*; *V. f. w. Ph.* = *Vierteljahrsschrift für wissenschaftliche Philosophie*; *Z. f. Ph. u. ph. Kr.* = *Zeitschrift für Philosophie und philosophische Kritik*; *Z. f. Psych.* = *Zeitschrift für Psychologie und Physiologie der Sinnesorgane, I. Abtl. Zeitschrift für Psychologie.* — Other titles are self-explanatory.]

La science et les systèmes philosophiques. E. MEYERSON. Rev. de Mét., XXIII, 1, pp. 203–242.

Positivism is a very widely accepted attitude among scientists. It means abstention from all metaphysics. Man thinks metaphysically as naturally as he breathes; consequently the positivistic attitude is difficult to maintain. Some 'positivists' erect a metaphysics of their own which finds reality in laws of nature; they regard the laws of nature as ontological realities. No doubt nature has a certain order, but we cannot regard the laws of nature as things in themselves. For example, the mathematical form of physical laws is founded on a mathematics which is the product of an historical development. Could there be laws without mathematics, *i. e.*, purely qualitative laws? Even if this were possible it would not improve the ontological status of laws of nature. The sulphur, *e. g.*, of the chemist, is never found pure, and is really an ideal substance. Other such ideal existences are the 'ideal gas,' the crystals as they are shown by crystalographic models, the mathematical lever. All this is thought, generalization, abstraction. As St. Thomas says, *existentia est singularium, scientia est de universalibus.* A law is an ideal construction, which does not express what happens, but what would happen under certain ideal conditions. And one should remark that the law disappears not only by being absorbed in a higher law, but also by being supplanted by a more accurate and precise expression. This tendency to take laws as real is not, however, true positivism. The latter, anti-metaphysical by nature, regards laws as rules governing our relations with the outer world, the collection of our sensations. To analyze this theory one must discover 'the immediate facts of consciousness,' as Bergson attempts to do. Can there be a science of sensations as such? Malebranche held that such a science was impossible and that science always involves a concept of a thing.

Physics assumes a real objective world throughout and deals with this rather than with our sensations. Whatever is regarded as belonging to the *subject* is thought an error, an anthropomorphism. The scientist is so firmly of the belief that he is dealing with objective reality that he creates new things in the image of those he is familiar with. Scientists dealing with electricity believe very firmly in the objective reality of the electric current, and would laugh at any other idea. If science were really positivistic and phenomenalistic it would not invent new *things*. Geometry is founded upon substantialistic conceptions; without solids which moved without modification it would be impossible, says Poincaré. Science implies the persistence of bodies through time and space with constant qualities. It is, then, not conformable to the positivistic schema, it needs the *thing*, it seeks being, it is ontological. Simultaneously with the development of science there have arisen philosophical systems. There have been four great types of philosophical theory of reality that have attempted to solve the ontological problem which is always implicit in science. They are, mechanism or atomism, the energeticist theory, philosophical realism, and mathematical idealism. Many who claim to be positivists are really materialists. Mechanism offers many difficulties. Movement is easily represented; but what is it that moves? There are two suppositions, the corpuscular hypothesis, and the dynamic hypothesis. But how does the corpuscle act? How does it manifest the absolute elasticity implied by the theory? How do the parts of the atom adhere to each other? According to the dynamic theory each atom is a point surrounded by forces; but how could this *nothing* exert inertia? Neither of these theories can show how one atom can act on another; and that is the basis of mechanism. At present the electronic theory of matter is widely held. This theory reduces everything to electricity, of which nothing is known; it thus reduces everything to an unknown X. Atomism is not really a scientific theory, but is of philosophical origin. It is really an *a priori* construction. In the last century it has had biologists, not physicists, as protagonists. The biologist is not intimately acquainted with mechanism, but uses it as a general principle to guide him in his research which consists in finding a mechanical explanation for as much as possible. Energeticism has a scientific origin, its author being Ostwald. Energy is for him a genuinely ontological principle. Philosophically it is on the same level as mechanism, which seeks to reduce everything to the displacements of something constant; here, of energy. Energeticism has been of little use scientifically. It is a doctrine of continuity in nature, whereas atomism is a doctrine of discontinuity; the latter view is now given support by the discovery of the absolute magnitude of the atoms. Energeticism belongs to the past. Philosophical, or transcendental realism, has been defended by Hartmann. According to Hartmann science sets out from common sense, but reduces the world to something different. Through all its work of destroying directly perceived reality, it preserves time and space, and so arrives at what Hartmann calls transcendental realism. These views are similar to those held by many scientists. Why is it that

scientists always tend to believe in the identity of the atoms? To answer this question we must turn to Descartes. He reduced matter to purely spatial terms. This tendency is widely spread at present. Everyone recognizes the tendency to reduce all to ether, which is nothing but hypostasized space. Everything is reduced to the atom, the atom dissolved in an indistinct whole of time and space, like the sphere of Parmenides. Such tendencies are forcing science towards mathematical idealism, 'panmathematicism.' This doctrine has been worked out by Cohen and the Marburg school, who find the essence of things in the truths of mathematical physics. It reduces everything to a purely ideal world of mathematical concepts. Mathematics possesses universal necessity, and not mere probability. But in physics there is always a factual element present as well as the mathematical. There is always implied a *donnée*, an ultimate quality, which seems to offer an obstacle to our rationalization of reality. The absolute magnitudes of the molecules constitute such *données*. Such irrationals may be expected. Might it not be that each division of science is founded on such an irrational? Such irrationals may divide physics and chemistry and biology from each other and may ultimately prevent the reduction of life to mechanism. Human free-will seems to be such an absolute beginning. The mathematician and philosopher may lose sight of these considerations and attempt to reduce everything to terms of mathematics. Such is the panmathematicism of the Marburg schooi. Panmathematicism is not positivism, but is a more adequate expression of the spirit of science. This tendency of science towards mathematical idealism is universal and appears where least expected, in spite of its illogical character. Science seems to be involved in a contradiction. It is held between two tendencies, it tends toward the abolition of reality, and it tends in the opposite dierction because of the diverse *données*.

W. CURTIS SWABEY.

Energie et Force. F. LE DANTEC. Rev. Ph., No. 493, pp. 2–36.

Man, knowing the world around him through the medium of his sense-organs, is led to construct objects and bodies, and to regard these as existing and as entities. But physics, using instruments which infinitely extend our powers of observation, interprets the grosser movements studied by mechanics in terms of the movements of atoms or of the yet smaller electrons. The phenomena of electrical induction reveal unsuspected relations in the world, which break down our notion of separate bodies and independent phenomena. Wherever we have a number of bodies before our eyes we may be sure that any modification of one affects all the others. At any moment within the limited circle which forms my universe, there are solids, liquids, gases and living bodies, all changing constantly in distinct ways. In any given store of energy there will be as many kinds as there are kinds of work or of change. It would seem as if this store of energy would be ultimately exhausted. The resources of the earth are, however, a whole, and not thus actually separated, and, further, they are replenished by the sun. But the earth manifests phe-

nomena unlike those produced by solar energy, indicating that with the dissipation of energy a totally different kind of energy is often formed. This conception of the transformation of energy would appear to make the earth independent of the sun, supposing the former to be once furnished with an definite store of energy. The sun is necessary, however, to repair loss due to dissipation of energy into space. These considerations lead the physicist to reasoning on complete systems. The author uses as an illustration 'the circulus of water,'—the final restitution, through rainfall, of water lost from a reservoir. So we may regard the history of the world as an uninterrupted succession of changes. Is this order fatal or is it reversible? We know at least that heat is capable of producing movement and that movement produces heat, and it is this reciprocal relation which led to the formulation of the principle of the conservation of energy. This principle raises questions which demand exact observation of transformations and the discovery of a common measure for different kinds of energy. A reservoir of water represents an available fund of energy which can be expressed in terms of two independent variables, the extension, *i. e.*, the amount of water available, and the intension, *i. e.*, the degree of fall possible. Applying these terms to other forms of energy we can say that one temperature is higher than another when it manifests a tendency to pass from the first to the second, and in a similar way we can apply the terms higher and lower to different conductors of electricity. By using these terms in this sense a scale of intensities can be established. Carnot has done this for the problem of heat and M. L. Selme has shown that it is logical to apply this procedure to any form of energy. But in order to balance gain and loss in the transformation of one form of energy into another we need a common measure; this is provided by electricity, which can be produced from other forms of energy and turned back into them. When the science of mechanics began, everybody believed in the absolute existence of bodies; movements were interpreted in anthropological terms, men spoke of a 'cause' or of a 'force,' and every movement was regarded as an expression of an isolated force. These verbal explanations are necessary as long as we believe in a plurality of phenomena, but a thorough criticism of this notion of force inevitably leads us, in spite of the inherent pluralistic tendencies of language, to a universal monism. M. Selme has raised the principle of the conservation of energy to the rank of a theorem by giving it a rational demonstration. Thus it is shown that the state of the world at any given moment is equivalent in terms of capacity for change to the state at the moment before. M. Selme has also demonstrated that Carnot's principle is a theorem and can be generalized to apply to the transformation of one form of energy into another; thus the old problem in regard to the degradation of energy is eliminated, for there is no degradation of energy. We must guard against taking for the whole universe our little world of human affairs confined within the thin veil of our terrestrial atmosphere.

WM. E. BINGHAM.

Caractères generaux de la philosophie française. V. DELBOS. Rev. de Mét., XXIV, II, pp. 1–13.

French philosophy is characterized by certain representative traits. The question is whether these national tendencies have necessarily hampered philosophy in its search for pure truth. One of the essential features of the French intellect is the striving for clearness in ideas and in relations between ideas. Clearness in scientific thought depends first on analysis, the ability to see the details; and secondly on synthesis, the power of seeing the whole. The true problem is to discover whether French philosophy has carried these two necessary processes of all philosophical thought to such a degree that they fail to keep in contact with reality. This, it seems, is not the case. Seen under a certain aspect, Cartesianism may appear the exaltation of the geometric spirit, but Descartes is aware that thought is superior to geometry. French philosophers have realized that to penetrate to the heart of reality requires a singular application of certain faculties, not privileged or transcendental, but human faculties. Far from practicing the abstract formalism of which it is accused, French philosophy has constantly allied itself with the positive sciences; witness such men as Descartes, Malebranche, d' Alembert, etc. The tendency to view the intellect through its work in science is one of the decisive motives of our philosophical activity, a tendency which is closely connected with the study of the human mind. Descartes, Pascal, Malebranche, Maine de Biran among the philosophers have this faculty of penetrating to the motives of the human soul. Through the fact that philosophy is so closely connected with the knowledge of human nature is explained the fact that it has never existed solely for contemplation but has always aimed to incite to action and has recognized legitimate human duties. If these are the characteristics of French philosophy one can truly say that it is without national prejudice.

VIRGINIA BAKER.

Kapitalistische Philosophie. FRIEDA WUNDERLICH. Ar. f. sys. Ph., XXII, 3, pp. 217–237.

One of the phases of the materialism which has held a central position for the last fifty years in discussions of the history of philosophy is the theory, advocated by Marx, that the ethical, religious, and philosophical ideas of any period have their foundation and source in an underlying structure of economic conditions. This conception of history may be justified in part, and the method of investigation which it implies may be carried a step further, by showing how the capitalistic organization of the economic life of our own times expresses itself in modern theories of knowledge. The characteristic feature which differentiates present-day industry and business from that of all other periods is its fundamental aim to create the greatest possible surplus of profit for the producer. This aim expresses itself in intense competition between the owners of capital, and results in their attempt to reduce the price of labor to a minimum, and by means of the perfection of machinery to derive the

greatest possible returns from the least expenditure of capital. Natural science and all the other achievements of the human mind are appropriated for the all-absorbing purpose of enlisting every power of nature in the service of mankind. Capital, money, and profit, which should be only the means of production, are made the whole end and aim of industry. Four modern philosophers seem to show the influence of this economic situation. The pragmatism of James denies the independent validity of theories, and asserts that their truth is determined by the practical consequences they have for life. For this philosophy, idealism and materialism, absolutism and relativism, determinism and indeterminism, are all alike except in so far as they affect the temperament, or private interests of the individual, and thus pragmatism expresses the individualism that dominates our economic life. Theories, which should be the end, are considered the means of thinking; and truth, which should be the highest value, is judged in terms of practical utility. Even religious ideas do not escape this philosophical anarchism. The belief in God is accepted when it can be made of use in the practical struggles of man, and is laid aside, like a machine in the economic world, when it no longer serves a purpose. Mach bases his theory of knowledge on the biological principle of adaptation and natural selection. Thought, as much as the other activities of life, is explained in terms of the struggle of the organism to adapt itself to the environment. In the earlier stages of evolution knowledge originates in the instinctive reactions of animals, and in the higher stages a more elaborate mechanism of adaptation is called forth by the greater complexity of the conditions of existence. Thus the starting point of knowledge is a biological necessity; its aim is the preservation of life; its means is economy. This principle of 'thought economy' is also emphasized by Avenarius and Ostwald. The former holds that the necessity for thought is found in the desire to economize energy. It is obvious how the image, the representation, and the concept accomplish this purpose, and all science and philosophy are more comprehensive applications of the same principle. With Ostwald, however, the principle of 'thought economy' receives even more emphasis. According to him all human activity consists in the usurpation and transformation of energy to fulfill the purposes of mankind. Thought, the state, and all the economic and social institutions are expressions of this principle. Although these philosophies bear a striking resemblance to capitalism, they also show the influence of natural science, particularly of Darwinism, and cannot, therefore, be described merely as the result of economic conditions.

F. W. A. MILLER.

The Fundamental Laws of Arithmetic: Psychological Logic. FREGE. Monist, XXVI, 2, pp. 182–199.

Logic and psychology are confused by logicians. Logical laws are frequently translated as psychological laws of belief. As psychological, they merely tell what happens in the psychological sphere. But laws of logic have an objective import which goes beyond psychological happenings. Benno

Erdmann is a type of modern logician who makes logic a description of what happens psychologically, and who conceives truth as the general agreement of those who judge. But truth is independent of belief, and logical laws are concerned with objective truth. Erdmann deals with notions (*Vorstellungen*), and his logic cannot contain anything objective, because he concerns himself with the way in which judgments and agreements are psychologically formed, rather than with how they ought to be formed. Laws of logic are laws of objective truth, not natural laws of human belief. It is necessary to admit the existence of an objective domain which is not a domain of actual things. The non-actual is not necessarily subjective. This is especially true of numbers, which have an objective reality although they are not actualities.

D. T. HOWARD.

Mr. Balfour's "Theism and Humanism." A. S. PRINGLE-PATTISON. Hibbert J., XIV, 2, 54, pp. 268–286.

The central problem of Mr. Balfour's *Theism and Humanism* is the relation of 'origin' to 'value.' Mr. Balfour rightly assumes the truth of the working body of root-beliefs upon which we all act in scientific procedure and practical life; *e. g.*, the belief in the uniformity of nature and the aesthetic and ethical judgments and sentiments of man. The task of philosophy is to discover what these beliefs presuppose or imply. A criticism of such common knowledge leads ultimately to theism. In this as in other of his writings Mr. Balfour attacks the dogmatic complacency and illogical procedure of naturalism and agnosticism. Naturalism leaves the emergence of our beliefs in rationality, goodness, and beauty, and the emotions which gather around them, inexplicable, and renders their persistence impossible. The source of morality and knowledge must itself be moral and rational. The facts of human experience are only intelligible in a theistic setting. God is the condition of the possibility of cognitive and ethical experience. Our beliefs about the world and our beliefs about God are interdependent. The categories most fitly expressing this point of view are providence and inspiration. Although from an analysis of knowledge we may infer that to found reason on unreason is intrinsically incoherent, and from an analysis of our aesthetic judgments and our ethical beliefs and practice we may infer that beauty and morality are not accidents, but are founded in the deepest nature of things, nevertheless, according to Mr. Pringle-Pattison, this does not in itself suffice to settle such questions as the personality of God or establish popular religious beliefs. "Perhaps the most that can be accomplished by such philosophical prolegomena is, by ruling out the various forms of naturalistic theory, to provide a congruous setting for science, morality, and art, and also for the higher religious life in which these main tendencies of our nature attain their consummation and consecration. And that is exactly how Mr. Balfour has consistently described the scope and purpose of his intervention in the philosophic debate."

RAYMOND P. HAWES.

Le problème religieux et les sciences psychiques. E. BOIRAC. Rev. Ph., XL, 4, pp. 313–326.

The psychical sciences, hypnotism, animal magnetism, telepathy, spiritualism, though still unable to cope successfully with many of the problems presented to them, yet, such as they are, offer a useful contribution to religious problems. The history of religion is full of strange phenomena, many of which seem to be just such phenomena as are taken account of by these new mental sciences. The stigmata of St. Francis, visions, religious ecstasies, divine inspiration, resemble hypnoidal phenomena. To magnetoidal phenomena correspond the imposition of hands, to which importance is attached by Christianity, and the miracle of the woman cured by touching Christ's garment. Telepathy would seem to be a key to the explanation of prophesies and the gift of language; while bilocation, apparitions and like phenomena belong to both the sciences of religion and the psychical sciences, and one may hope that the latter will aid the former in determining their true significance. But whatever progress these mental sciences may make, it seems impossible that they can ever solve the fundamental problems of religion; that they can ever account for the religious sentiment in man, or make known the nature of God. D. T. HOWARD.

Ethics as Science and as Art. GEORGE CLARKE COX. J. of Ph., Psy., and Sci. Meth., XIII, 8, pp. 204–219.

With due recognition of the metaphysical nature of all scientific presuppositions, we may treat ethics as a science, in the sense of "an ordered knowledge of natural phenomena and of the relations between them." The most explicit program for such a treatment has been proposed by L. Lévy-Bruhl. The problem is not so much to establish standards or norms as to discover how men come to have certain standards. The method of natural science is as applicable to the discovery of the growth of norms as it is to the discovery of laws, and is calculated to teach us, not how to conform to a certain set of ethical rules, but how to behave wisely in society. The author is preparing a Case Book in Ethics, which will use much of the material of sociology, law, etc., but which will have its own specific purpose, *i. e.*, to contribute to the study of the relations of men and groups of men, considered as organisms. Such a study of cases of conduct logically precedes other studies, such as biology, religious psychology, etc., contributory to an investigation of the problems of moral responsibility. Together with the theoretical part of ethical science should go a practical part, an art of ethics, including, for instance, directions as to the control of the will such as may be found in Edwin B. Holt's *The Freudian Wish.* MARION C. CARROLL.

Die Freiheit und die gegenständliche Welt. FRITZ MEDICUS. Kant-Studien, XXI, I, pp. 26–41.

The article begins with a quotation from Eucken declaring that the truth of knowledge must have its deepest ground not in preoccupation with the

object but in spiritual creation, in the formation of character. What follows is largely an exposition of Eucken's point of view. The Kantian philosophy has given a new turn to the problem of freedom. Although it is not solved we can at least see now that we cannot solve it by proofs of the impossibility of freedom in the objective world. Nor can we speak of the freedom of the individual, meaning the *de facto* individual, taken as object. Man is free for himself, but only as a member of a community. Reality indeed does not originally consist of individual objects. Man is rather from the beginning a member of a universal life process. But the innermost essence of man and of the whole world is his freedom. This is not 'given,' but proposed (*aufgegeben*), in the sense that it lies with him either to live actively in and through the process of reality or be a passive fragment in its organization. Freedom is the task of a community. In the effort to lift the moral burdens of the community, we must be guided not by abstract ideals of perfection, but by the possibilities of concrete reality. In the stress of the present war, the 'neutral,' being removed from the actual situation, tends to be lost in sentimental individualism, to look for the rational instead of the actual, for abstract humanity instead of nationality, and so may fail to realize the moral value of war. We must be men not in the abstract, but here and now, not in a changeless Absolute, but in our particular historical setting. But given our circumstances it is our responsibility to penetrate them with living spirit. It is indeed through meeting the objective world by an effort of the will that we get the content of our personality. The tasks which lie for us in things are what make them reality for us. We cease to think of 'things' as external to us as soon as we think of the 'I' not as shut up to itself but as the sharer in a common life. Each unconquered or unspiritualized 'thing' injures the life of the community. Each time a 'thing' is transmuted, grasped in its full reality, an enriching of the common life takes place. Every man has originally in himself much that ill qualifies him to be a free sharer in the tasks of the common life. He must put this phase of himself over against himself, and by conquering it bring it into the service of the community. Freedom and the validity of the objective world do not exclude each other. The overcoming of the objective world gives freedom all its substantiality. Objects certainly have their place in this life, but life consists not in them but in overcoming them, making them belong to the life of the spirit.

MARION C. CARROLL.

Die Begründung einer idealen Weltanschauung. KARL SKOPEK. Ar. f. G. Ph., XXII, 3, pp. 235–256.

The present paper deals with the origin, nature and evolution of religion, and with the meaning of Christianity for civilization. A previous paper has shown the idealistic tendency of philosophy and science; that the spiritual alone is real; and that there is a continuous series of monads, each striving for greater perfection, which culminates in man as a self-conscious or personal being possessing religion, art, and science. The origin of religion is not to be

found in man's impotence, or in priestcraft, but in his need for a causal explanation of everything in spiritual terms. Thus arose animism. Thales said that everything was full of gods; Plato held the same view. The idea of animism was strengthened by primitive man's experience of dreams, death, fainting, etc. Thus he came to believe in gods with whom he could identify himself in the mysteries. The Evangelists brought this idea into the Gospels; especially was this the case with Paul, who knew the Mithra-mysteries, in which the idea of Communion is found. Animism is the first stage of religion. The essence of religion consists in the belief in higher powers and in the feeling of dependence upon them. The decline of polytheism was followed by the belief that there must be one being higher than the old gods. Thus in India the unity of all existence was recognised in the *Rigveda*. The Upanishads take the position that this unity which lies at the foundation of everything is the Self, the *Brahman-Atman*, the Absolute. The ancient Greeks attained to monotheism through Xenophanes. Socrates believed in an all-wise, all-powerful God, who stood to the world as the soul to the body, and who directed all to the well-being of man. For Plato, God was the Idea of the Good, the source and light of the world, which he described as possessing aseity, and as eternal, immutable, *etc.* Plato's immortal service to religion consists in placing the center of gravity in morality: the unjust man is hated by God, the just loved. Aristotle's God was pure Form, immanent in the scale of existences in which Form is progressively realized, and yet, in principle, transcendent, and thus pure Thought of Thought, the motionless cause of motion. The ancient Israelites only gradually attained to monotheism. *Jahve* was at first only a tribal god among others. The prophets elevated this tribal god to the ethical level. But it was Jesus who first conceived God as the loving Father of all men. The modern tendency to emphasize this world, and the outcome of science estrange many from Christianity. We must lay aside the husk of formula and dogma surrounding Christianity, and recognize the precious treasure it contains. Our Christianity is colored by the Christology of Paul, to whom Jesus became the Philonic Logos, pre-existent, present at creation, far above the old gods of Greece and Rome in conception, who appeared on earth to redeem man from the Adamic sin. This latter idea Paul borrowed from the Rabbinical theologians. These Pauline ideas were foreign to the doctrine of Jesus as expounded in the Synoptic Gospels. Jesus taught, primarily, ethical perfection, to be attained by Love. This ideal of Love is the highest ideal and will triumph over the ideal of the Superman.

W. CURTIS SWABEY.

Dreams as Psychical Explosions. J. C. GREGORY. Mind, N. S., No. 98, pp. 193–205.

Dreams often, if not always, disturb our sense of the duration of time; this disturbance acts in the one direction of lengthening the apparent duration of the dream. The essential characteristic of dreams seems to be a *rise* of consciousness. Since the circumstances of the dream through awakening are usually those most completely known, it may be taken as a norm for com-

parison. Such a dream shows an explosive rise of consciousness as the character and condition of its origin; the mind pushes back all experiences except the impression made by the original stimulus. This principle, when applied to other dreams, suggests a satisfactory interpretation of their nature and origin. The intensity of the mind's activity exaggerates the sense of duration. In the dream, consciousness achieves a creation. Some dreams *may* be centrally initiated, but it seems certain that some peripheral stimulus is usually in operation. ELLEN B. ARMSTRONG.

Das Gewissen. DR. FRIEDRICH BODEN. Ar. f. G. Ph., XXII, 2, pp. 118–133.

There are two fundamentally different systems of ethics. The one depends for its moral precepts on the dictates of an inner voice or intuition called conscience, the other on the carefully thought out rules of the intellect. Conscience, since it does not recognize or base its judgments on fundamental principles, tends to rely upon free-will as opposed to the intellect. Its opposition to conscious thought connects it with the sphere of inclination and instinct. That all other human characteristics become merely side issues when compared with it and that it is in his conscience that the real man is revealed, is an irrefutable theory that claims a large number of adherents. On the other hand the adequacy of the conscience as a substitute for intellectual judgments is very widely denied. Upon such a theory a teacher, basing his actions entirely on the dictates of his conscience, can give no other reason for them. He cannot, therefore, prove his decisions to be better than those of the pupil with whom he disagrees. The only course open to him is an appeal to universal experience and if in addition to the decisions of the individual conscience, even though they be considered fundamental, certain universal principles are also accepted, the conscience-ethics is open to very little criticism. If the environment under which a conscience has been developed suffers a radical change there is danger that it, no longer recognizing itself, will become confused. An ethics which tends to evaluate the contents of the understanding will, then, produce better results. The man who neglects the practical side of his life for the sake of his conscience runs the risk of destroying his usefulness. "The statesman who consults his own conscience has little prospect of saving his people from external plots and internal difficulties." The conscience-ethics is a "morality for millionaires" and is impractical for the man who is engaged in the daily struggle for existence. CHARLES H. WRIGHT.

Religion and Society: A Critique of Émile Durkheim's Theory of the Origin and Nature of Religion. A. A. GOLDENWEISER. J. of Ph., Psy., and Sci. Meth., XIV, 5, pp. 113–124.

According to Durkheim, the religious inspiration cannot come from nature nor can fundamental religious conceptions be derived from dreams or similar illusory experiences. The reality underlying religion is society itself. He regards Totemism as the primitive religion. He says that the ordinary life of the Australian is monotonous, but that under the excitement of certain ceremonial activities he is transformed. He feels himself carried away by

a superior power. This experience is the basis of religion. Durkheim overlooks the fact that natural phenomena have always produced profound religious emotions. His derivation of religion from society is also open to objections. Many tribes do not possess this complex social organization and elaborate ceremonialism. How does Durkheim explain the origin of their religions? Durkheim believes that the 'religious thrill' arises from crowd-psychological situations. The emotions are intensified; the higher mental processes are paralyzed; and the instinctive and reflexive responses rise into prominence. But the specific emotion is not born of the crowd, and differs in different situations. The feeling may be joy, fear, hatred, or religious adoration. A crowd-psychological situation may intensify and even transform a religious thrill, but it cannot create one. The special religious experiences of many tribes, moreover, take place when the individual is in isolation. The great religious leaders often shun the crowd and live in solitude. These cases refute Durkheim's theory.

MELVIN RIGG.

The Formulas for State Action. A. K. ROGERS. Int. J. E., XXVI, 3, pp. 323–338.

Three formulas for state action have been popular in recent times. (1) The *laissez-faire* doctrine wished to restrict governmental control (*a*) because of governmental abuses in the past; (*b*) because of the growth of industry and the consequent prominence of its competitive principles. (2) The 'general good' doctrine arose as a protest against definite evils resulting from the practice of (1). Both (1) and (2), however, are vague formulas, and ambiguous as to the limits of government. Furthermore, men emphasize 'the general good' when they are sacrificing themselves in social conflict rather than when they are working constructively according to individual bent. Collectivism tends to sink *men* in *organizations*. The 'good' must be ultimately the good of individuals. The real question for democracy is: what constitutes this good? (3) The 'equal opportunity' formula opposes a rigid definition of this good by a paternalistic system and recognizes the need for restriction, while calling for such positive state action as will facilitate individual development. Special or class legislation is admitted as tending directly to equalize conditions. But the aim should be to produce a world with the richest variety of human life, so that interference is called for only when a real incompatibility between ends can be demonstrated. The formula recognizes and would allow opportunity for differences in power. A theory which wishes to sacrifice the average man to the genius cannot easily convince the average man. On the other hand any tendency to level down the standards of living must be combatted. The principle of equal opportunity does not commit itself on the questions of money reward or of right to hold office, but definitely does not justify a 'right to power' of one man over others, except by consent, for practical purposes, or by rational persuasion, since its final emphasis is on the individual.

MARION C. CARROLL.

NOTES.

Hugo Münsterberg.

I can think of no more fitting introductory words for an account of Hugo Münsterberg's life than those of his friend and colleague, J. McKeen Cattell,[1] who writes:

"'Harvard with James, Münsterberg, Royce . . . surpasses every other university in the world in its opportunity for psychological study and research.' Now they all await us 'where beyond these voices there is peace'—Hugo Münsterberg, always my friend since our student days in Leipzig, who with the hand of genius threw prodigally broadcast the diverse endowments of his great nation and his great race; William James, 'the sweetest, wisest soul of all my days and lands'; there is none like him, none, nor will be; and Josiah Royce, his friend and ours, the well-beloved disciple, who leaves the world darker, now since his light is quenched."

Hugo Münsterberg died at his Harvard post on December 16, 1916. He was born in Danzig, Germany, June 1, 1863. Following graduation from the Gymnasium of his native place, he studied in Leipzig, where he came under the influence of the great psychologist, Wilhelm Wundt. He received the degree of Doctor of Philosophy in 1885, and thereupon began the study of medicine in Heidelberg. The degree of Doctor of Medicine was conferred upon him in 1887.

Münsterberg's academic career began with his appointment as Privatdocent in the University of Freiburg in Br., in 1887. Four years later, 1891, he was made Professor Extraordinary in the same institution. Acquaintance with William James, which began at a psychological congress held in Paris in 1889, resulted in a call to the Professorship of Experimental Psychology at Harvard University in the year 1892. This call he accepted at first on leave of absence from the University of Freiburg. After three years of service at Harvard, he returned to Germany and spent two years at Freiburg. He thereupon returned to his Harvard position, and gave the remainder of his life to its duties.

The Chair of Philosophy at Königsberg, formerly occupied by Immanuel Kant, was proffered him in 1906 and declined. In 1908 he was offered a professorship for American civilization in Berlin. He received calls also to educational institutions in England, Holland, and Russia.

Numerous scientific organizations and educational institutions recognized his scholarship by electing him to membership, to office, and by conferring upon him honorary degrees. From Harvard, he received the honorary degree of Master of Arts in 1901; from Washington University of St. Louis, the

[1] *Science*, N. S., Vol. XLV, p. 277, March 23, 1917.

degree of Doctor of Laws in 1904; from Lafayette College, the degree of Doctor of Literature in 1907. He planned the International Congress of Arts and Sciences held in connection with the St. Louis Exposition, the importance of which for the arts, the sciences, and international relations was widely recognized. During the academic year 1910–11, he served as Harvard Exchange Professor in Berlin, and at the same time, organized the America Institute.

Although an enthusiastic champion of research, Münsterberg was also devoted to the art of teaching, and throughout his academic career he gave a large part of his time to presenting psychology to students. Year after year he lectured to large classes in both Radcliffe and Harvard, but his chief satisfaction, apart from his own creative work, came from contact with the advanced students who frequented his laboratory and seminary room. To these young men and women, and to hundreds of undergraduates, he gave himself unreservedly.

Hugo Münsterberg's originality and industry were conspicuous from the first. During the Freiburg period, he published four parts of a theoretical and experimental work entitled *Beiträge zur experimentellen Psychologie*, and in addition, four other volumes on psychological topics. At the same time he had succeeded in developing a psychological laboratory and in securing an important following of students.

During his early years at Harvard, he was occupied with the mastery of the English language, the study of American characteristics and institutions, the development of his laboratory, the fostering of psychological research, and the tasks of instruction. For six years he wrote little, but in classroom and laboratory gave bounteously of his information and enthusiasm to the eager students who thronged to hear him. His fertile imagination supplied an endless variety of problems to the young investigators who sought training in his laboratory. Year by year the publications of the laboratory increased in number and importance. In 1903, the publication of the Harvard Psychological Studies was inaugurated under his direction and editorship. Harvard owes chiefly to his efforts her well-planned and equipped psychological laboratory in Emerson Hall.

The year 1899 marked the beginning of a period of great literary and scientific productiveness. In that year he published, as his first American volume, a collection of essays entitled *Psychology and Life*. There followed in rapid succession more than twenty volumes. The titles of some of the most important of these will serve to indicate the character and range of Münsterberg's interests: *Grundzüge der Psychologie*, 1900; *American Traits*, 1902; *The Americans*, 1904; *Science and Idealism*, 1906; *On the Witness Stand*, 1908; *The Eternal Values*, 1909; *Psychotherapy*, 1909; *Psychology and the Teacher*, 1909; *American Problems*, 1910; *Vocation and Learning*, 1912; *Psychology and Industrial Efficiency*, 1913; *American Patriotism*, 1913; *Grundzüge der Psychotechnik*, 1914; *Psychology, General and Applied*, 1914; *The War and America*, 1914; *Business Psychology*, 1915; *The Peace and America*, 1915; *Tomorrow*, 1916; *The Photoplay*, 1916.

Of these works, the author doubtless took greatest satisfaction in *The Eternal Values* and the *Grundzüge der Psychologie*, which as originally planned was to consist of three volumes, only one of which had been written at the time of his death.

During the last few years of his life, Münsterberg's interest centered in the applications of psychology. He indicated, in turn, the practical bearings of his science on education, law, medicine, and finally, on industry. Many of his books bear psychotechnical titles, and the problems of research which occupied him and which he suggested to his students became increasingly technological.

With all the variety and intensity of his interest in the technical problems of his science, this remarkable man combined a keen interest in educational, social, and political problems. Of more than passing interest and significance are his numerous contributions to these subjects. Moreover, at no time in his professional career was he less willing to be considered a philosopher than a psychologist.

A man of singular simplicity of mind, he yet especially prided himself on his diplomacy and his insight into human nature. His most conspicuous traits of character were unfailing kindliness, hospitality, generosity, and appreciation of the rights and needs of his fellowmen. He possessed a large faith in humanity and intense loyalty. Always a hard worker, his mental energy seemed as limitless as his enthusiasm. No discouragement long depressed him, for his optimism was superb. Learned and possessed of all scholarly instincts, he yet was modest and unassuming in manner and approachable even by the most timid of students.

ROBERT M. YERKES.

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We give below a list of articles in current philosophical magazines:

THE HIBBERT JOURNAL, XV, 2: *Harold Begbie*, National Training: The Moral Equivalent for War; *Edward M. Chapman*, Enforcing Peace; *J. A. Hobson*, Is International Government Possible?; *G. G. Coulton*, Democracy and Compulsory Service; *Dr. H. A. L. Fisher*, French Nationalism; *The Bishop of Carlisle*, Sacramental Religion; *H. H. Scullard*, The Originality and Finality of Christian Ethics; *B. W. Bacon*, The Festival of Lives Given for the Nation in Jewish and Christian Faith; *James Lindsay*, Proclus as Constructive Philosopher; *Mrs. A. C. Osler*, Stumbling-blocks; *Carl Holiday*, Religious Beliefs in American Colleges; *Henry Clark*, Is Liberty an Adequate Ideal of State Action?

THE HARVARD THEOLOGICAL REVIEW, X, 2: *Alfred Fawkes*, The Development of Christian Institutions and Beliefs; *Preserved Smith*, English Opinion of Luther; *Ernesto Bonaiuti*, The Genesis of St. Augustine's Idea of Original Sin; *Frederic Palmer*, Preaching and Worship.

MIND, No. 101: *C. Lloyd Morgan*, Enjoyment and Awareness; *Norman Wilde*, Rousseau's Doctrine of the Right to Believe; *L. P. Saunders*, Mr.

Russell's Lowell Lectures; *T. Graham Brown*, Speculations on the Working of the Brain.

THE MONIST, XXVII, 2: *Albert J. Edmunds*, The Text of the Resurrection in Mark, and its Testimony to the Apparitional Theory; *J. W. Scott*, Bergsonism in England; *Gustave A. Feingold*, The Present Status of the Unconscious; *Nirvana* (*Poem*), Paul Carus; *J. M. Child*, The Manuscripts of Leibniz on his Discovery of the Differential Calculus.

JOURNAL OF EXPERIMENTAL PSYCHOLOGY, II, 2: *Kate Gordon*, Some Tests on the Memorizing of Musical Themes; *Harold A. Richmond*, Quantitative Tonal Stimuli without Qualitative Change; *A. P. Weiss*, The Focal Variator; *H. C. Warren* and *Prentice Reeves*, Hipp Chronoscope without Springs; *William M. Marston*, Systolic Blood Pressure Symptoms of Deception.

THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY, AND SCIENTIFIC METHODS, XIV, 8: *Mary Whiton Calkins*, Purposing Self versus Potent Soul: A Discussion of Professor Warren's "Study of Purpose."

XIV, 9: *Daniel Sommer Robinson*, An Alleged New Discovery in Logic; *John Dewey*, Concerning Novelties in Logic: A Reply to Mr. Robinson.

XIV, 10: *James Bissett Pratt*, A Defense of Dualistic Realism; *Morris R. Cohen*, The Distinction between the Mental and the Physical; *Smith Ely Jelliffe*, Dr. Watson and the Concept of Mental Disease.

XIV, 11: *Warner Fite*, Consciousness—Where Is It?; *B. H. Bode*, The Nature of the Psychical; *H. E. Cunningham*, Theory as Truth: A Criticism.

XIV, 12: *Wilbur M. Urban*, Ontological Problems of Value.

REVUE DE MÉTAPHYSIQUE ET DE MORALE, XXIV, 2: *V. Delbos*, Les conceptions de l'histoire de la philosophie; *F. Enriques*, Sur quelques questions soulevées par l'infini mathématique; *L. Rougier*, La symétrie des phénomènes physiques et la principe de raison suffisante.

RIVISTA DI FILOSOFIA NEO-SCOLASTICA, IX, 1: *La Redazione*, Agli amici della nostra filosofia; *Francesco Olgiati*, Benedetto Croce e la guerra; *F. Palhoriès*, Gli antecedenti della filosofia contemporanea in Italia; *Agostino Gemelli*, Intorno al principio di nazionalità.